





## 5th Question.

42, answer no.  
7, say they have no hot boxes with Master Car-Builders' journals.

1, answer hot boxes point that way.

## 6th Question.

48, use the same quality of oil on all cars.  
7, say they use a better quality of oil.

## 7th Question.

2, say they have not, but expect less repair per ton per mile.

48, " " " " been greater.

48, " repairs have been slightly greater.

1, says " depend upon length of trains.

1, " they are greater on account of heavier engines.

## 8th Question.

47, say they do not.

8, " a slight difference.

Many say no perceptible difference upon cars well built.

## 9th Question.

2, say no, as less wheels pass over the track per ton per mile.

11, think the repairs must be greater.

14, answer no.

19, say they do not know.

4, " probably slightly.

4, " not perceptibly.

## 10th Question.

29, say there is no doubt about it.

5, say they cannot.

5, prefer shorter cars.

2, cannot answer the question.

2, say 30-foot cars are long enough.

2, say 32 " " " " "

5, say 34 " " " " "

2, say 35 " " " " "

1, says 40 " " " " "

1, says 40 " " would be easier and safer on the track.

## 11th Question.

28, have no doubt that it would be economy to increase the carrying capacity to 25 or more tons.

11, say 20 tons is load enough for 1 car.

1, says it could be increased to 30 tons.

1, says the journals could not be kept cool.

2, say by increasing the load you make less cars and trains do the same work.

2, are doubtful.

2, advised to stop at 20-ton cars for the present.

## 12th Question.

29, would recommend an increase in weight of wheels and size of journals.

6, would recommend for 30-ton cars a 4x8 journal.

9, say there is no necessity for an increase of either.

10, would increase the weight of wheel but not size of journal.

8, would increase the size of axle.

## 13th Question.

38, say there is no doubt about it.

8, say it can, saying nothing of less cost of cars, less repairs, etc.

1, says it can at a moderate speed.

1, says 25 per cent. cheaper.

1, thinks 20 tons is load enough.

2, say it would make a difference of 2 trains per day over their road.

3, say it can, as the train would be shorter and lighter.

1, says it can as it would take less motive power.

1, says it can, and the point is the number of tons of freight drawn instead of the number of cars.

1, says he cannot tell.

1, says no.

Quite a number have not answered many of the questions. Too many have simply said, no and yes.

In conclusion your Committee would say that in their opinion FREIGHT can be carried in 30-ton cars, with as much safety, and greater economy, than in cars of less carrying capacity, and would recommend that any company building 25 or 30-ton test cars increase the weight of wheels to 575 lbs., and use the Master Car-Builders' Standard Axle or one of a larger size.

C. A. SMITH,

J. N. MILEHAM,

C. E. GAREY,

Committee.

Mr. C. A. Smith, Union Tank Line, made a long explanation of the carrying capacity of the 30-ton cars, and he had no doubt that the capacity could be increased. He read a number of questions and answers from the different railroad superintendents, in which a variety of answers were made, but there was much left unsaid. Mr. Davenport then said that his experience in the increased capacity of freight cars was very gratifying, but he was in favor of making haste slowly. He was not an old fogey, but he felt that 20 tons was about as much as should be placed upon a car, unless the car was made elephantine in proportions.

Many opinions were offered, pro and con, and the debate was participated in by Messrs. Smith, Bissell, Townsend, Davenport, Garey, Raymond and others.

On motion of Mr. Gray a committee of three was appointed to test the capacity of the car-builder's axle as to ability to run at different rates of speed. This was followed by a somewhat lengthy debate on the hot box question, in which the different kinds of packing were introduced, and the kind of material to be used in the manufacture of packing.

The association then adjourned until nine o'clock next morning.

After the adjournment the members were taken in carriages through Fairmount Park, stopping on the way at Belmont Mansion, where a collation was served.

## SECOND DAY'S PROCEEDINGS.

On Wednesday morning the Convention was largely augmented by the arrival of additional members, increasing the individual representation to fully 100. By far the most important business transacted was the adoption of the amendment to the constitution, providing for an official representation of railroads in the Association. The committee on this subject—President Garey, W. T. Hildrup, W. P. Ford, C. A. Smith and M. N. Forney, presented an exhaustive report recommending the adoption of the amendment to the constitution, providing for the creation of a third class of members to be known as the representative class, which shall include any person having a practical knowledge of car construction and holding written appointment from the proper authority of any railroad company to represent its interests in the Association (this amendment we have published several times). In urging the merits of the proposed amendment President Garey, Thomas A. Bissell, of the Pullman Car Co., and others who favored it, argued that while it was not intended to take away from any master car-builder the right of being an active member of the Association, yet if any railroad company should wish to have its interest

represented by some person other than its master car-builder, the proposed change in the constitution offered it that privilege, with the provision, however, that the person appointed should have a practical knowledge of car construction. In further presenting the advantage of the proposed amendment, it was argued that as the constitution now stands, railroad companies have no representation whatever in the Association, beyond such exertions as their master car-builders may make, if they are members. The proposed new class of members, it was explained, would be of such a character that each railroad company could be represented by a vote proportionate to its interests, or in other words, to the number of cars it owned. It was expected that the measure would be strongly opposed, but the opposition proved to be weak and scattered, and was quickly disposed of. Some thought that official representation of railroads might ultimately effect the original objects of the Association. Others entertained the fear that the amendment, if adopted, would have the effect of permitting the organization to come under the sole control of railroad monopolies. After a full ventilation of views on the subject, the amendment was finally adopted without a dissenting vote. Already over 50 railroads comprising the largest proportion of the most important lines in the country have signified their desire to be represented in the Association under the provisions of the new amendment. The adoption of the clause is deemed to be the most important measure ever enacted by the organization.

## COMMITTEE REPORTS.

The substitution of iron for wood and steel for iron in car construction formed the basis of an elaborate report presented by W. R. Davenport and John Kirby. "The past year," the committee stated, "witnessed a less rapid advance than was desired in this movement. As yet, the conservative men argue that we are going forward fast enough for the best good of the railway companies—for time is required to test each change thoroughly to prove that it is an improvement. The price of steel is still so high that few are disposed to attempt to substitute it for iron. Substantial progress, however, has been made in substituting iron for wood in car trucks. We trust that before another convention steel manufacturers will find it to their interest to reduce the price of steel so as to make it possible to use it in car construction." No action was taken on the report, which will be published hereafter.

In their report on a standard wheel gauge, R. C. Blackall, David Holt and T. D. Adams stated that they could not agree upon a standard gauge of wheels, and thought it best to leave the subject to the consideration of the Association. The committee further stated that the wheels should be gauged between the flanges on the inside of the wheel, and concluded with the suggestion "that a standard gauge for guard-rails be recommended to engineers, road-masters and trackmen generally to insure the proper distance of guard-rails from frog-guards, so as to prevent unnecessary strain on wheels and axles in passing through frogs." This report was adopted without discussion; it will be given hereafter.

Following this was the report on brake-shoes, as follows:

## REPORT ON BRAKE-SHOES.

To the Master Car-Builders' Association:

Your Committee to investigate and report upon "brake heads and shoes" were convinced at the time of making their report to you last year, that the brake head and shoe known as the "Christie" was the best of the many that had been brought to their notice, and would have recommended it, had they not been under the impression that patents would not be considered. In the year that has passed, we have given the matter careful consideration, and can see no reason for changing our minds. We find that the patent expires September 12, 1882, so that the matter of royalties need not be considered.

We would therefore recommend that the brake head and shoe known as the "Christie" be adopted, and be known as the Master Car-Builders' standard brake head and shoe. Also that arrangements be made with the Railroad Gazette, to furnish standard drawings of the same. In regard to placing brakes on all the wheels of freight cars, we have made several experiments in relation to it, and are satisfied that when applied to all the wheels the car will be stopped much quicker, and that the brakemen are not obliged to apply the brakes to as many cars to stop a train as if they were applied to only four wheels. With the same power applied where there are brakes on eight wheels instead of four, a large amount of friction is obtained, and yet the wheels do not slide, therefore bringing the train to a stop in a shorter space of time.

We are satisfied that there is a very large percentage less of flat wheels when brakes are applied to all the wheels, and would strongly recommend such an application of the brakes to freight cars.

J. W. MARDEN, } Committee  
S. A. DAVIS,

This was also received without discussion, and the Convention adjourned.

## RULES FOR INTERCHANGED CARS.

The afternoon session, in pursuance of the rules, was the half-yearly meeting for the revision of the rules governing the repairs of interchanged cars. This meeting is properly separate and distinct from those of the Association, but is held in accordance with its rules, and nearly all those present are its members.

At this meeting Mr. J. W. Marden, of the Fitchburg Railroad, was called to the chair. Forty-three railroads were represented as appended, the list including the number of votes to which each delegate was entitled.

Chesapeake & Ohio, 4 votes, John McFarland; Atchison, Topeka & Santa Fe, 10 votes, George Hackney; Baltimore & Ohio, 16 votes, L. Packard; Boston & Albany, 6 votes, F. D. Adams; Boston & Maine, 2 votes, D. C. Richardson; Burlington, Cedar Rapids & Northern, 2 votes, R. W. Bushnell; Canada Southern, 3 votes, Robert Potts; Central Railroad, N. J., 18 votes, George Hackett; Central Vermont, 3 votes, S. Beman; Connecticut River, 1 vote, R. Hitchcock; Chicago & Alton, 7 votes, Joseph Townsend; Chicago, Rock Island & Pacific, 8 votes, B. K. Vebyck; Chicago & Iowa, 1 vote, H. S. Bryan; Chicago, St. Paul, Minneapolis & Omaha Railroad, 3 votes, W. B. Rice; Cleveland, Columbus, Cincinnati & Indianapolis, 6 votes, W. F. Turrett; Delaware & Hudson Canal Co., 12 votes, R. C. Blackall; Detroit, Lansing & Northern, 2 votes, R. C. Watrous; Fitchburg, 4 votes, J. W. Marden; Flint & Pere Marquette, 2 votes, R. McPherson; Grand Trunk, 4 votes, W. McWood; Gulf, Colorado & Santa Fe, 1 vote, W. H. Martin; Houston & Texas Central, 3 votes, James McGee; Illinois Central, 6 votes, W. B. Snow; Indiana, Bloomington & Western, 4 votes, B. Warren; Lehigh Valley, 21 votes, J. S. Lentz; Lake Shore & Michigan Southern, 16 votes, J. Kirby; Lake Erie & Western, 3 votes, H. L. Cooper; Missouri Pacific, 10 votes, John Hodge; Michigan Central, 7 votes, Robert Miller; New York, Ontario & Western, 3 votes, E. Minshall; New York City & Northern, 1 vote, M. McNally; New York, West Shore & Buffalo, 1 vote, Howard Fry; New York, Lake Erie & Western, 28 votes, F. M. Wilder; New York, Pennsylvania & Ohio, 7

votes, William Fuller; New York Central & Hudson River, 31 votes, Leander Garey; Philadelphia & Reading, 18 votes, L. B. Paxson; Rochester & Pittsburgh, 1 vote, J. P. Hovey; Southern Central, 1 vote, H. D. Titus; Terre Haute & Indianapolis, 3 votes, E. R. Carter; Toledo, Delphos & Burlington, 3 votes, J. H. F. Wiers; Virginia Midland, 1 vote, J. T. Nalls; Wabash, St. Louis & Pacific, 20 votes, R. M. Hemphill; Western Maryland, 1 vote, David Holtz. In voting upon the adoption of the rules each 1,000 cars owned by a railroad company entitle it to one vote.

Although over three hours were occupied in considering the 21 rules, but one material change was made, and that was to increase the price of the \$450 gondola car to \$475. J. W. Marden made an earnest effort to change Rule 6. This motion was to amend the rules so that it would read as subjoined:

"In such case a card may be affixed under the body of the car for guidance of other inspectors, stating the defects with which the car will be received back, or which will be paid for if the road receiving it is obliged to repair before connecting roads will receive it, or if unsafe, to return to the road delivering, the bill to be made against the road making the bill, the card to accompany the bill."

The proposition created the liveliest kind of interest, but was finally defeated by a vote of 84 yeas to 203 nays, the Philadelphia & Reading, the Lehigh Valley, New York Central and the New York, Lake Erie & Western railroads voting against the measure. The New Jersey Central Railroad voted in the affirmative.

A proposition to amend Rule 16 by increasing the price of brass journal bearings from 20 to 25 cents per pound, iron castings from 2½ to 3 cents per pound, bearings of other materials to be charged for at cost, was likewise rejected.

The rules as revised take effect July 1. The meeting then adjourned.

## Contributions.

## Papers on Painting.—No. 8.

BY CHARLES L. CONDIT.

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## THE QUALITIES OF COMMON PIGMENTS.

The usefulness of a pigment in relation to the oil has already been discussed. It remains to study its other qualities which have not to do with its protecting, but with its coloring properties.

These qualities are (1) covering (coloring) power, (2) kind and quantity of color, (3) durability of color, (4) price.

Covering (Coloring) Power.—Colder-blooded peoples paint not to satisfy their sense of color but their sense of fitness.\*

"Color," says the first decorator of our time, "will never take real hold on the art of our civilization. Imitation and affectation may deceive people, but the deception will not last. To have a meaning and make others feel and understand it must ever be the aim and end of our Western art."

Nevertheless, color is more important than any other quality of a paint. In America until now, we have painted with white as expressive of the strong American sense of neatness, but the fashion threatens to turn "bilious."

Covering power is due to two qualities. (1) Whitewash made of lime and water has very little covering (coloring) power until it becomes dry. Barytes covers well as a water paint because, as in the case of whitewash, the water leaves it as a dry powder, but it covers poorly in oil, because the oil remains with it, and the light reaches it through the oil. Prof. Von Bezold has illustrated this curious and important question in the following manner†:

† Von Bezold, "Theory of Color," L. Prang Co.

It should be premised, however, that many white substances are white because they are in fine particles. A white lily is white because it consists of little cells which reflect all kinds of light, again and again, until it reaches our eyes from some part of its surface. Water becomes white when it is broken into fine drops, as in a waterfall, or on the crests of waves. White lead and zinc owe their whiteness to their dense, fine powder-like condition. Finally, transparent glass becomes white when it is ground into a powder.

Experiment, illustrating how lime, barytes and white leads containing crystals become in oil more or less translucent, and therefore do not color the surfaces on which they are placed.

"If we fill the lower part of a small glass tube (a test tube) with coarsely powdered glass, the powder will appear

Fig. 13.



white, and it will be impossible to see through it, but as soon as we pour water into the tube the powder will become translucent to a certain degree. By substituting turpentine for the water, the degree of translucency is considerably increased. Furthermore, if we add a small quantity of sulphuret of carbon to the turpentine, we shall obtain a liquid which reflects (bends) the light about as powerfully as glass, and if we now pour some of this liquid upon the powder, the latter will disappear almost entirely to the eye, and we shall be able to look through the glass freely as if it contained only the clear fluid without the least particle of powder. If we immerse a glass rod in such a liquid (instead of



which we may also employ a mixture of olive oil and oil of cassia) it will appear as if the rod reached only to the surface of the liquid. Within the liquid the presence of the rod cannot be detected; it is perfectly transparent as shown by (the illustration). Instead of the powdered glass, small beads of transparent, colorless glass may be used. They will become invisible as soon as the liquid dislodges the air between them.

It is shown by these experiments that the presence of one transparent body within another is only betrayed to the eye when the two differ in their power of refracting light. If this is not the case, the light passes through the mixture without obstruction.

#### General Test for White Paints.—(Chandler).

"Any white paint ground in oil may be tested by comparison with a pure article.

"Weigh out 100 grains of each paint to be compared, add 3 drops of linseed oil to each, and spread as nearly as possible alike on 6x12 glass, using a steel spatula for this purpose.

"Place the samples (thus prepared) between yourself and the light; the sample which shuts off most light, and appears darkest, has the greatest covering capacity, and its purity may be inferred as it excels in this respect."

There are other questions connected with covering power, which are too difficult to explain here; but the above facts will aid in making it clearer why some pigments lose their covering power in oil. White lead and zinc owe their coloring power partly to the fact that they are dense metals which are in fine powder. White lead as it ages loses some of its carbonic acid and covers less well than at first, so that a black color under it is not so much hidden as before. This is also to some extent the case with zinc white, but it is evident from the fact that the hydrated oxide of lead has no covering power, that it is to a change in the condition of the lead by the carbonic acid that the whiteness is due. This change may be merely the reducing the lead to fine particles whose surfaces are very irregular, and therefore reflect light like so many pieces of glass ground to a powder. Certain it is that large particles of white lead whose surfaces are more regular and crystalline\* do not cover so well.

(2) It seems certain, however, that the weight and smallness of the particles are the important facts. One of the best authorities says that, weight for weight, zinc covers as well as if not better than lead, but in a greater number of coats. The same is true of the different sorts of white lead.

Mulder estimates that three coats of lead are equal to five coats of zinc; difference in covering by these substances, therefore, is merely a question of labor; with fewer coats one can get a better covering, but will use the same weight of metal.

There is, however, another sense in which covering power is used, which is entirely different from the above. Zinc white is said to cover 33 per cent. more surface than white lead; and a good iron paint (as for instance the English Torbay paint) 62 lbs. as much surface as 112 lbs. of either white or red lead. Truly, but zinc white covers its one-third greater space with a thinner layer; and likewise with the iron paint. Thickness of layer as a protection to iron must be taken into account.

Covering power has, therefore, three or four senses; protection to the oil, fullness of coloring to the surface, the amount of surface colored, and the thickness of covering resulting from the union between the oil and the pigment.

The kind and quality of the color is the second and all-important quality of a pigment. It decides against the use of red lead, which in many respects is the most valuable pigment there is. It also decides against the iron paints, which are in other respects the best of paints. He is the skillful surface painter who can produce cheap, quickly-drying, hard, durable paint of clear, deep and quiet hues.

In artistic painting, the problem is to produce lasting and durable hues, which shall be clear and pure, free from all muddiness and change.

**Durability of Color.**—Zinc white is the most durable of white colors; sulphur gases changing it to a white sulphide of zinc, while the sulphide of lead is black. Zinc white has also less tendency to become yellow than white lead, although it darkens in the shade to a degree. Lead grows darker and more yellow with each year, wherever exposed to sulphur gas, or deprived of the sun. Lead tends to powder, zinc to flakes or scales. White lead being carbonic acid lead is not affected by carbonic acid gas; the carbonic acid in rain water changes the zinc (oxide of zinc) into carbonic acid zinc. The acids of unseasoned wood also have a great effect upon it (Dent). Although the carbonic acid is easily driven off from the white lead by even a weak acid, yet it is doubtful whether zinc has more advantage than durability of color over lead; and whether lead will not in exposed situations hold out as long or even longer than zinc. For the interior of the house, zinc is the superior paint over a foundation coat of lead. Zinc is immediately less bright than lead, but can be improved by a little varnish (dammar or other varnish), and in time becomes very hard and takes a good polish.

Mixtures of zinc and lead are probably better than either alone, although one of the best painters in our acquaintance insists that it results in a tendency to crack. This opinion is not borne out by the experience of others of less intimate but larger experience. It may, however, be true. Many zincs contain sulphuric acid, and therefore, are in danger of darkening the lead (by sulphide of lead) or injuring its covering power by making sulphate of lead.

**Barytes (Sulphate of Baryta).**—This substance is a natural product, known abroad as heavy spar and also as an artificial chemical product (permanent white). It is found in this country in Virginia and several other states, and is washed and ground and mixed with anything which will allow of the mixture. A "floated" barytes, i. e., a finer quality made by floating off and settling the finer particles, is also

used. Artificial barytes has a greater covering power than the natural article, and is known as *blanc fixe*, permanent white, etc., and with sulphide of zinc makes up the new Fulton and other whites.

Probably the larger number of tons of white lead used on this planet have contained barytes; and as an honest and acknowledged adulteration not exceeding 10 or 15 per cent., there is no proof that for outside work it is not a gain to both durability and price. Zinc lacks weight, and this the barytes has, and it is a wise addition to zinc for outdoor use where lead is not preferred (Masury).

Lead does not cover so well with barytes, but zinc in the best sense covers better—i. e., protects better. I cannot speak from definite experience. As some pigments contain 90 per cent. of it, it is wise to listen to what can be said in its favor. One of the best authorities on paints, while he admits the injury to the covering power of pigments by an adulteration with barytes, gives it the credit of these advantages: (1.) It brightens dark colors. (2.) It injures chrome yellow less than it does some other colors. (3.) It prevents pigments needing a large amount of oil to reduce them to the consistency of butter (as in prepared paints), from absorbing so much, by sooner producing this consistency. Its principal disadvantage is its lack of covering power, and the ease with which it induces men to injure their own character as well as that of their paints. The best houses, however, sell no adulterated white lead under their own names.

An American chemist\* who a few years ago investigated the adulteration of paints in our market gives the following as his results:

**Second-class white leads** are frequently met with containing from 10 to 50 per cent. of white lead, the remainder being zinc white, sulphate of lead (which is white but has little covering power), chalk, whitening, gypsum, barytes, clay, etc.

**A third-class white lead** may be represented by the following sample:

Lead.....	14 per cent.
Zinc white.....	60 " "
Barytes.....	20 " "
Other substances in small quantity.....	—
	100 per cent.

This "lead" was probably made by grinding together 25 parts of barytes, 15 parts whitening, and 60 parts of zinc.

#### A second-class zinc white:

Barytes.....	54
Zinc white.....	44
Other substances.....	2
	100

The adulteration of colored pigments by barytes is universal, but largely it is not dishonest, because the pigment is so made up for the price. There is, however, dishonest adulteration, also, here.

**Iron Paints** (oxides of iron mixed with clay, sand, etc., either naturally or with purpose).—No substances are more lasting. There are houses in Sweden which, says the chemist Berzelius (1838), have stood well preserved for 300 years covered with iron paint. Mulder suggests that the pitch in the wood was not without influence in this case. Another authority suggests the use of fish oil either with or over the paint, or else the paint was a sulphuric acid iron, boiled with the oil, producing a preserving fluid which little by little sank into the wood.

The only objection to these pigments for all outside work is their color. This is difficult to change. Aniline colors have been used for this purpose (as prepared paints), but are not to be trusted. Burning any suspicious paint over an alcohol lamp will destroy the aniline and leave the reddish iron in its natural color, exposing the cheat. Sulphuric acid iron colors, however, are well suited to this purpose on wood, less so for iron.

These iron paints require a treatment which their price in this country hardly allows. They should be ground to the finest powder, and then ground for some hours with oil of the best quality, as is the English Torbay paint. Unless they contain their full amount of oxygen in the natural state, they should previously be thoroughly roasted, when they become of a violet-red color. With age their tendency is to darken from the formation of black oxide of iron; but their great durability is due to the fact that the air has so little effect upon their substance.

Red lead is a valuable addition both as a drier and as supplying the qualities (except color) which iron paints lack.

Iron paints are largely adulterated, naturally and otherwise, and the adulteration is an important consideration. Barytes, chalk and silica lessen the covering power; but clay has the disadvantage of being affected by water. The best adulteration is pure silicon—quartz, sand, etc.

**Ochres.**—These are clays naturally tinted with oxides of iron and manganese containing water. They are the oldest and most lasting of pigments. Samples have been found in Pompeii; they were known in Greece, possibly in old Egypt.† Their special value is in tinting, the best ochres, well ground and washed, having the brightest of durable tints, in yellow especially; i. e., speaking with a view to cost and durability. Said Bourvier: "No other color can take the place of yellow ochre." There is, however, a great difference in quality of even French ochres, the lower grades containing more clay and being, perhaps, less desirable (on this account) than some American ochres. In general, ochres contain less than 40 per cent. of oxide of iron.

\* Henry G. Debrunner.

† The four pigments used by the Greeks in their pictures are said (Pliny) to have been white, yellow, Athenian ochre, red ochre from Sinope, and black. This corresponds very closely with the palette used by Titian (chief of all colorists) for his dead color. He knew that his red was an ochre, and, therefore, the yellow was also an ochre for harmony.

A well-known yellow found at St. Georges sur le Pres is composed as follows:

Clay.....	69.5 per cent
Oxide of iron.....	23.5 " "
Water.....	7.0 " "

The burned ochres change to a variety of hues; those containing more iron and changing to a reddish brown; those containing more manganese, to a chestnut brown. Therefore the darker ochres dry better. The change is due to a loss of the water, and to the linking of oxygen with the metal (in place of the water), especially so in the case of the manganese. The ochres are permanent to a great and lasting degree; but still the light blackens yellow ochres somewhat.

The adulteration of ochres and of all mixed and more common pigments is an important factor. Lime injures their covering power, as does barytes, for the reasons given above. Clay gives the pigment a softer and less gritty touch; but clays are affected by water, unless, as they do, they soak up quantities of oil. It will be necessary to speak of tests at another time.

All the above pigments, however, may be treated as to their fineness between the fingers, or by rubbing them upon a stone with a knife. All gritty particles and large pieces indicate a badly washed pigment. Fineness of particles is a very important quality.

**Terra di Sienna.**—The true article is a valuable pigment, brighter and more transparent than ochres; raw, it has a yellow-brown hue, producing with white bright, sunny tints; burnt, it becomes a rich orange russet, more transparent on drying. It is an iron clay, but its superiority of color is probably due to a small quantity of sulphuric acid in its composition. The native American sienna is entirely inferior.

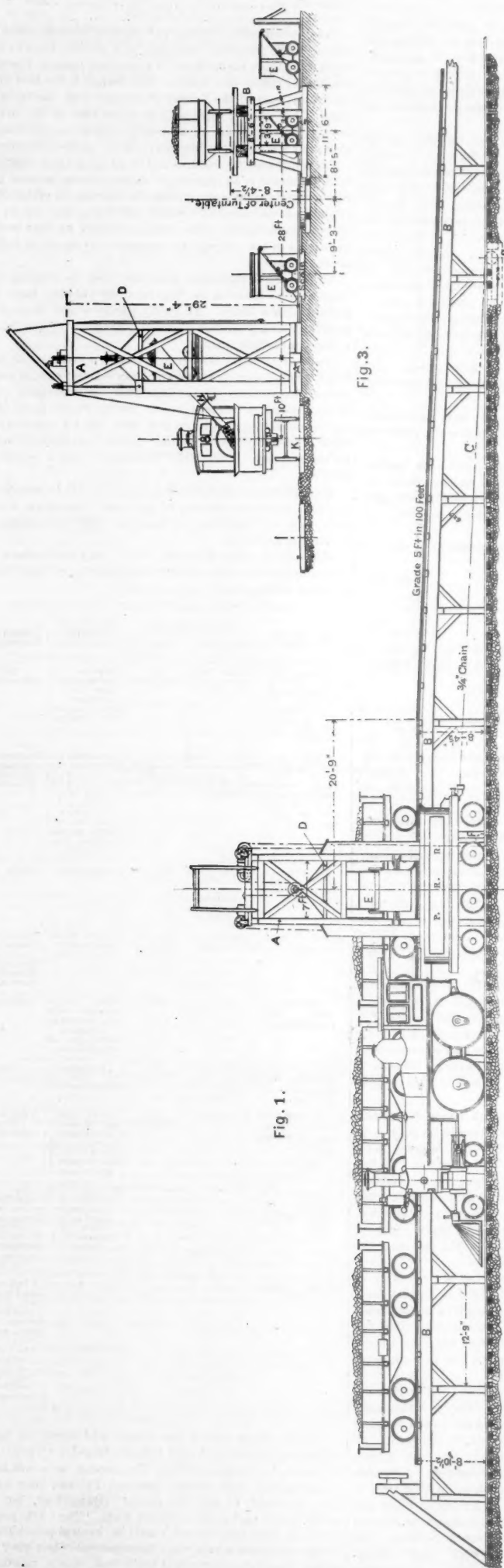
The raw sienna requires 33 per cent. of oil to prepare for market; the burnt sienna, 25 per cent.; therefore, it needs only, and will bear much thinning with turpentine. So thinned it dries well.

**White Lead.**—The following table may assist those who desire to discover what adulteration has been used in lead or other white paint:

NAME OF THE PIGMENT.	CONDUCT TOWARD		HEATED BEFORE THE BLOW-PIPE.	SPECIAL PROPERTIES.
	Muriatic acid.	Caustic soda.		
1. Whiting (precip. chalk, Vienna chalk, Blanc de Troyes, Blanc de Mendon, calcium carbonate).	Soluble with effervescence.	Unchanged.	Becomes incandescent and turns turner's paper brown after cooling.	Not poisonous.
2. White lead (ceruse, pearl white, Ham burg white, Venice white, etc.), carbonate of lead, etc.	Soluble with effervescence and deposition of small crystals.	Soluble without residue (80 per cent. when bad).	A coating formed on the charcoal, citron-yellow when hot, sulphur-yellow when cold; easily fusible metallic beads also formed.	Blackened by sulphuretted hydrogen. Poisonous.
3. Pattinson white lead, lead oxychloride.	Soluble without effervescence. Deposition of small crystals.	Same as above.	Same as above.	Same as above.
4. Zinc white, zinc oxide.	Soluble. No effervescence.	Soluble without residue.	Yellow white when hot, white when cold.	Fused with cobalt nitrate solution turns green. Somewhat poisonous.
5. Antimony white, antimonious acid.	Same.	Same.	White, easily volatile coating, metallic globules which give off white smoke.	Poisonous.
6. Bone ash, carbonate and phosphate of calcium.	Soluble after heating, effervescence at first.	Unchanged.	Unchanged, but becomes incandescent.	Not poisonous.
7. Baryta white (blanc fixe, mineral white), sulphate of barium.	Unchanged.	Unchanged.	After igniting, if moistened with muriatic acid, gives odor of sulphuretted hydrogen.	Very heavy. Not poisonous.
8. Gypsum (alabaster) hydrated sulphate of calcium.	"	"	Incandescent, otherwise like heavy spar; gives water if heated in a tube.	Difficultly soluble in water. The solution is rendered turbid by chloride of barium solution. Not poisonous.
9. Clay (china clay, etc.).	"	"	"	Clay, moistened with cobalt solution and heated before blow-pipe, colored blue. False has a soapy feeling, is scaly in structure. Neither is poisonous.

**Umber.**—Much said of the ochres will apply to umber, which is a manganese ochre from the island of Cyprus; there is also an American article. The former is a soft brown color, "lovely raw umber" (Samuel Palmer), "one of the most delicate of all the earths" (Hamerton), but with white, burnt umber gives muddy tints. "The white seems to reveal in them (umber and Vandyke brown) possibilities of disagreeableness which were unsuspected when they were alone. Vandyke brown and white look like a mixture of chalk, mud and the lees of wine; they bear no apparent relation to the fine, deep, semi-transparent brown color which bears the name of the illustrious artist. Burnt umber so rich in its pure state, is so dirty with white that the mixture spoils the color of every picture into which it is admitted" (Hamerton). A little umber with white lead grows lighter with age; more gives a continually darkening tint, partly due to soap-making. By itself it has good body,

\*From the Greek word for frost; reflecting light like ice.



COLLIN'S ARRANGEMENT FOR SUPPLYING LOCOMOTIVES WITH COAL.

*Designed by Mr. J. B. Collin, Altoona, Pa.*



dries quickly and stands well. American ochres are found in several parts of the United States, especially in Virginia ("Bermuda Hundred"), Vermont, and, we believe, in other states.

Probably a large quantity find their way into ready mixed paints, although as dry paints there is little demand for them.

Spanish brown is a notable color for roofs, which has much testimony in its favor. There is a foreign Spanish brown which is a brown coal.

#### Collin's Arrangement for Supplying Locomotives with Coal.

The engravings represent the method for coaling engines which has been designed and patented by Mr. J. B. Collin, Mechanical Engineer of the Pennsylvania Railroad, and which is now in successful use at a number of stations on that road. The main principle of this plan is that of using the power of the locomotive which is to be supplied with coal to raise the latter into a convenient position from which it can be dumped into the tender. This is done by means of an elevator or lift constructed alongside of the track on which the locomotives stand when they are to be supplied with coal. This elevator has a suitable cage, which is raised by means of a rope or chain attached to the locomotive, the movement of the latter on the track drawing up the cage.

Fig. 1 of the engravings is a side elevation, fig. 2 a plan, and fig. 3 an end view of the apparatus. Figs. 4 and 5 are

ive trestle work necessary to store a supply of coal at the proper elevation for loading on tenders is entirely dispensed with, and the daily supply can in general be unloaded directly from the cars into the dumps, thus saving a second handling.

The main trestle has a slight ascending grade towards the back. The cars loaded with coal are pushed back on the trestle and its inclination permits them to be successively run down and unloaded over the point at which the track from the elevator passes under the main trestle. This gives an opportunity to unload the coal directly into a small car, which is then pushed across the turn-table and over the scales to the elevator. When the small car returns from the elevator it is run on the siding TT, fig. 2, by means of the turn-table F, so as to make room for another loaded car to be brought forward to the elevator. The coal which is kept in stock is piled up under the main trestle.

It is plain that it makes no difference which way the engine runs in taking coal, whether backwards or forwards, and that it can be done with equal facility either way.

The engravings represent the structure recently erected at Lewistown, Pa., which has been for some time in successful operation. In addition to this one, there are three others in successful operation—one at Allegheny City, one at Coal Port, near Trenton, N. J., and one at Camden N. J. Besides these, several others are to be built—one at Snow Shoe, one at Elmira and one at Conemaugh.

It may be added that the address of the inventor is at Altoona, Pa.

air brakes, which operate continuously throughout the train upon the wheels of each car whenever and wherever applied. These brakes are ordinarily applied by the engineer in charge of the engine, and are intended to be exclusively under his control, excepting in the case of a sudden emergency of which he had no sufficient warning. In view of the possibility of such an emergency, cords were placed in each of the cars, so exposed that they might be used by employees of the road or passengers. By means of these brake cords, which communicate with valves connected with the brake pipes, the air could be released from such by any one in either of the cars, and the train thus brought to a sudden stop. It was only necessary to pull one of these cords, so as to hold open the valve to accomplish such a purpose.

The stopping of the train is shown to have been caused by the application of the air-brakes, and seems to have been a gradual and prolonged obstruction of the wheels of the cars, a fact which would appear to discredit the theory, maintained by some of the witnesses, that either through accident or design one of the cords above referred to had been pulled. The evidence taken on the subject of the use of air-brakes shows that care and skillful management are required for their proper and gradual application, even by engineers whose especial charge is to apply them, and that when applied suddenly, as it would appear must have been the case in this instance, if the application was made by anyone in any of the cars, the result would be a sudden stoppage and jarring of the train. It was a part of the instructions of the engineer in charge of the train that he should "see that the brakes were applied and the speed of the train slackened" on approaching the curve mentioned, and if he performed his duty in this particular, an application of the brakes should have been made by him, just before the stopping of the train. On the whole, your committee are of the opinion, that, from the evidence taken by them, the suggestion that the brakes were applied by some one using the brake cords for that purpose in one of the

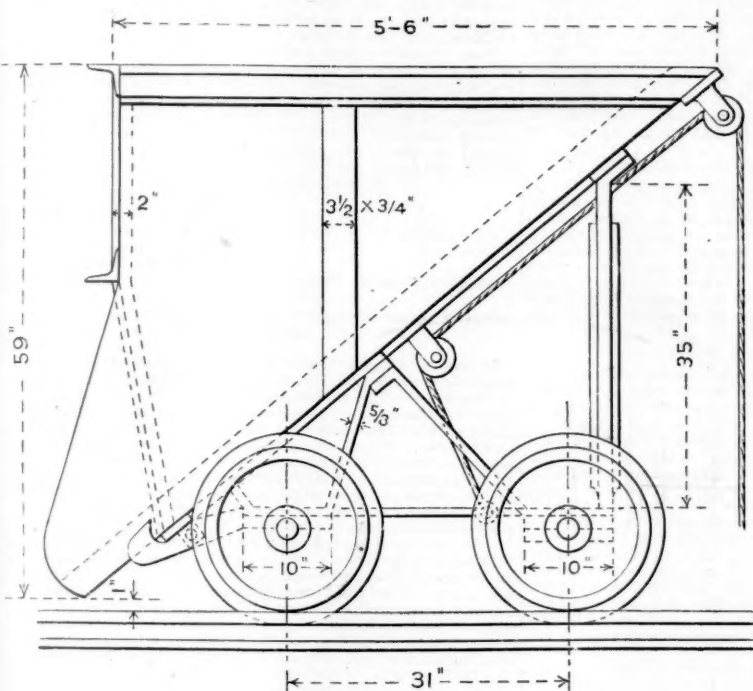


Fig. 4.

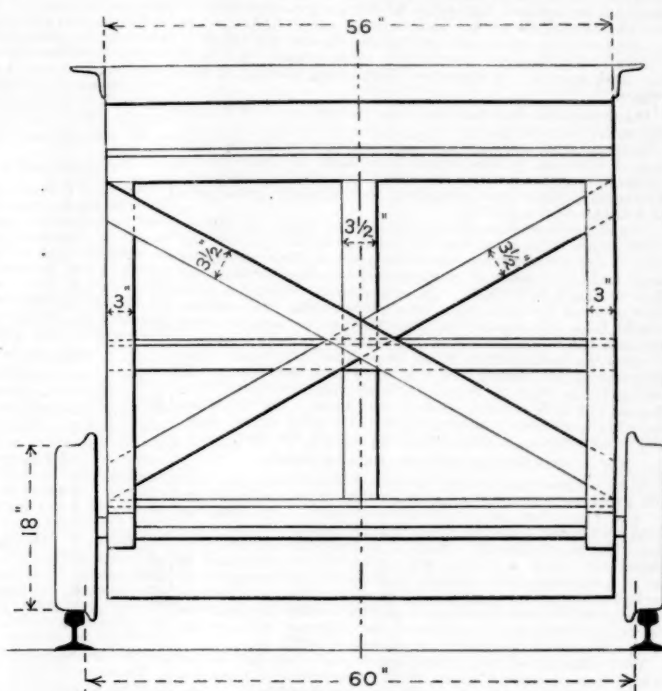


Fig. 5.

#### TRUCK FOR COALING LOCOMOTIVES.

enlarged views of a dump-car, by which the coal is conveyed to the tenders.

A suitable trestle BBB is constructed at any convenient distance from the coaling track KKK. This is of such height that the coal received in the cars can be conveniently dumped either on the surface of the ground below, or into small cars F, F', fig. 3, which are used to convey the coal to the locomotives. These cars run on a transverse track SS, fig. 2, from below the trestle B to the lift AA, and on the cage D. The chain by which the latter is raised is shown by dotted lines in figs. 1 and 2. After passing over the pulleys at the top of the cage and elevator, as shown in fig. 1, it is carried down to a pulley f at the base, and from there to a snatch-block g, and from that to the locomotive or tender as indicated by the dotted line C in fig. 1. When the cage is at the bottom of the elevator the locomotive is backed up towards g, and is attached to the chain C. In moving to the position in which the tender will be opposite the elevator, the cage is drawn up by the locomotive, to a sufficient height to permit the coal in a dump-car in the cage to be unloaded upon the tender.

The operation is as follows: A dump car F, loaded with coal either directly from a car on the trestle B or from the stock underneath, is run from the trestle B to the cage in the elevator A. The locomotive to be coaled backs up the track to the point where the chain C can be attached to the rear end of the tender by the ordinary coupling appliances. As the locomotive now moves forward, the chain C raises the cage of the elevator, and when the locomotive reaches the position in which it is represented in the engraving, the cage is raised to the proper height for discharging the coal from the dump-car in this cage into the tender. The chute H is then lowered, the coal from the dump car is discharged into the tender, the chute is raised, the locomotive is backed until the cage reaches the level of the ground, the chain C can then be readily uncoupled from the tender and the operation is complete.

The advantages of this arrangement are that the expense

#### Report of the New York Senate Committee on Railroad Accidents.

To the Senate of the State of New York:

Your Committee, appointed by resolution of Jan. 19, 1882, and directed "to examine into the causes which led to the recent accident at or near Spuyten Duyvil, and to inquire and report what, if any, legislation is necessary or expedient to prevent, so far as possible, similar accidents in the future," respectfully submit the following report.

##### THE TRAIN.

The train to which the accident occurred was a passenger train of the New York Central & Hudson River Railroad Company. It had been advertised to leave Albany for New York at two o'clock and 40 minutes, p. m., on the afternoon of Jan. 13, 1882, and it started from Albany at three o'clock and three minutes, p. m., of that day, or 23 minutes after the time appointed for its departure. It consisted of seven drawing-room cars, one of them used as a smoking car, one mail car, two baggage cars and three ordinary cars, one of the latter also used as a smoking car, thirteen in all; was drawn by two engines, and was made up, with the exception of one drawing-room car, which came from Troy and joined it at Greenbush, at Albany. The passengers, excepting those in the Troy car, embarked at Albany, and were some 257 in number, and of that number some 50 were members and attachés of the Legislature, in both houses. It was provided with one conductor, two brakemen, one engineer and a fireman, and the usual baggage-master and baggage hands. There were also on board a conductor of the drawing-room cars, and the porters and attendants of the latter cars, the last-named conductor, porters and attendants not being in the employ of the railroad company, but employed by the proprietors of the drawing-room cars.

##### THE ACCIDENT.

According to the testimony of the conductor of the train, nothing unusual occurred to delay its progress after its departure from Albany until it reached the place of the accident, excepting a necessity for an unintended stop at Hyde Park for water, arising from the fact that at Houghkeepsie the water-tank was found to be frozen, and, excepting, also, the breaking of a pin between the engines, while they were moving to or from the water-tank at Hyde Park. But the conductor seems to have been unaware of the necessity for relieving the brakes hereafter mentioned.

At Spuyten Duyvil the train came to a stop beyond the bend in the curve of the track at that point. The brakes in use on the train were those uniformly used by the road on its passenger trains, known as the Westinghouse automatic

passenger cars is not sustained. It is, moreover, in evidence before them, that it had been previously necessary to release the brakes twice, by extraordinary means, at different points on the way, viz., at Hyde Park and at Montrose stations, where stops were made for water, and where the brakes, after having been applied by the engineer to make the stops, seem to have required especial treatment to bring them again under the engineer's management. No legal evidence, or anything amounting to more than conjecture, is given to support an assertion that any of the brake cords in the cars were operated upon to cause the stopping of the trains, and while some evidence was taken to show that in the ordinary smoking car there were those who indulged in noisy and bilarious conduct, and that drinking was indulged in, to some extent, in that car, there is nothing in the evidence taken by your Committee which gives any credit to the imputation that any one on the train made use of the brake cord to stop the train.

When the train came to a stop as mentioned, on the curve at Spuyten Duyvil, it had regained only one minute of the time lost at Albany, and was therefore 23 minutes late. From the point of stoppage, and in the rear of the train, the Spuyten Duyvil station was distant half a mile. It appears that when the delayed train reached the Spuyten Duyvil station, a train which was following it, known as the Tarrytown special, was approaching that station and reached it 13 minutes after. The Albany train had been delayed some 12 or 13 minutes when this Tarrytown train approaching ran into it, with the fatal consequences attending the accident in question.

Specific written directions of the road, issued to and well understood by its employees, required of the conductor that he should immediately send the brakeman, stationed at the rear of the Albany train, back with signal lanterns, at least half a mile, to warn approaching trains of danger; and the rear brakeman was also directed by the same instructions to go back instantly for the same purpose, without waiting for the conductor's instructions.

It appears from a diagram submitted to the Committee by the Superintendent of the road marking the spot at which the train stood, and the point at which the signal light in the hands of the brakeman was observed by the engineer of the approaching Tarrytown train, that the brakeman was but 50 ft. in the rear of the Albany train when his signal was observed by that engineer, and that the distance of the approaching train from the rear end of the Albany train was then but 375 ft.; with everything in readiness to stop the train, and under the most favorable circumstances in that respect, it is the opinion of the General Superintendent of the road that the train in question could have been stopped in a distance of 400 ft.; but the conditions to that



end were that at the instant of observing the signal the engineer should have been in perfect readiness to apply the proper appliances to stop the train, and of course the engineer must have been prepared for and expecting to receive the signal of danger. It appears, therefore, that even under such favorable circumstances the engineer of the approaching train would have required 25 ft. additional distance in which to stop his train before reaching the Albany train. This is on the assumption that his train was running at ordinary speed. But the engineer of the Tarrytown train was acting under rules which required trains to run "cautiously" around this curve, and he should have had his train under control at that point, and may have been negligent in not obeying that rule. And the evidence tends to show that if the engineer had had his train "under control," i.e., according to the definition given by the witnesses, had obeyed the rules which required him to "run cautiously," he could have stopped his train after seeing the signal and before reaching the stationary train. The evidence is also that ordinarily and at the ordinary speed of trains a distance of 600 ft. is required for a stop. It further appears from the diagram mentioned, that the point at which the engineer of the Tarrytown train first observed the signal light in the hands of the brakeman was just where the curve turned towards the Albany train and light, and on a straight road it would probably have been observed at much greater distance, sufficient no doubt to have enabled the engineer to stop before reaching the delayed train.

It is a fair inference, therefore, in the judgment of your Committee, from the foregoing statements, that the negligence of each of the three employees mentioned—the engineer of the Tarrytown train and the conductor and brakeman of the Albany train—may have contributed to or separately have caused the accident, and that if either one of these three operatives had implicitly obeyed the written and specific instructions given to him the accident would have been avoided. It is fair to the conductor to say in this connection that he testified that, while he did not give instructions to the brakeman to go back with a signal light, when he stepped from the train after the stop he did not think it necessary to give such instructions, as he plainly saw that the brakeman was in the act of discharging his duty in that respect.

It is noticeable that the train was stopped at a very dangerous and unusual place—viz., just beyond the bend or angle of a curve—and that if it had happened upon a straight portion of the road the risk which arose from the brakeman's omission to go back would have been materially diminished. The signals might then, according to testimony, been seen at a distance of 3,000 ft.

The disasters resulting from the interception of the Tarrytown train were most serious and distressful. One of the cars of the Albany train was lifted upon another car of the same train, and some of the passengers crushed between the floor or firmly held there. The material of which the interior of these two cars were constructed being very inflammable, from the manner in which they were furnished and finished, they took fire and were burned so rapidly that passengers confined within them were also consumed. The progress of the flames seems to have been very rapid, and owing to the want of means to bring water to quench the flames, but little could be done to stay them. The fire is believed to have been communicated from coals spilled from the broken stoves, or from the lamps used in the cars.

#### RECOMMENDATIONS OF THE COMMITTEE.

Your Committee have not thought it desirable to go over the ground covered by the examination taken immediately after the accident before the coroner's jury, summoned to hold an inquest respecting the deaths caused by the accident, the proceedings of which have been extensively published and read in the newspapers, but have considered it more advantageous to address their investigations particularly to those other inquiries which seemed within the scope and extent of their authority, and which relate to the general management and provision of the railroads of the state, with reference to the safety of passenger travel.

Your Committee feel compelled to say that the duties which have devolved upon its several members during a very busy session of the Legislature, now drawing to a close, have rendered it impossible to pursue their investigations in the direction indicated with that thoroughness and sufficiency which its extent and importance demanded, and that it has been possible for them to make only some superficial examinations into the systems prevailing upon a few of the leading and more important roads of the state. Their investigations have, however, been sufficient to show to them the usefulness of such inquiries, on the part of the Legislature, and especially of such as shall reach the whole subject and exhibit the management and systems in detail of all the different roads of the state. Your Committee feel at liberty, in view of the investigations made by them, to suggest for consideration of the Legislature several topics upon which legislation may be found to be desirable and which seem to them of importance.

#### SHOULD THE STATE DICTATE METHODS OF OPERATION?

In the opinion of your Committee the state should not assume to share with the railroad companies the responsibility for their management in matters relating to the safety of passenger transportation, or in the selection and use of those appliances which may be best adapted to secure to railway passengers immunity from injury and loss of life. Neither is it advisable, in their judgment, either by acts of the Legislature to take such responsibility, or by delegation of authority to railroad commissioners or other public officials to confer upon others the power to accept any part of such responsibility for the state, at all events when there is any room for doubt as to what are the safest and best means to secure the end in view. It is plainly practicable and expedient, however, that the state should exact from such companies that in all matters connected with the safety of passenger travel they shall exercise the greatest care, and that in all such matters as the adequacy of the service, the safety of construction, the condition of the engines, machinery and rolling stock there shall be no unnecessary risks. While, therefore, it would not be wise to prescribe what particular kinds of machinery or signals or appliances shall be used, it seems proper to require that such appliances as are made use of, so far as they have any relation to safety, shall not be employed in a condition which renders safety uncertain for that reason.

It seems to be the theory of the railroad companies that the interest which they have in preventing accidents, in view of the losses which are entailed upon them in the destruction of property, and the liability to which they are subject when accidents occur, is a sufficient guaranty to the traveling public and to the state that every possible precaution will be taken to insure safety, and that the companies will adopt not only the safest methods and the most effective and approved machinery, but also make all such expenditures as are necessary to maintain their roads and machinery in safe condition. But while there can be no doubt that this reasoning is in a great measure sound, and justified by facts, it seems nevertheless a wise and proper precaution on the part of the state to exercise such supervision and control in the respects indicated as will more completely insure an observance of those precautions which the public have a right to

demand for their security and comfort from the companies, and which the government ought to be solicitous that they shall not neglect.

#### RULES GOOD, BUT NOT ALWAYS OBSERVED.

In the minutes of testimony taken before the Committee will be found the current codes of rules issued to their employees by several of the principal railroads of the state; they are believed to be very explicit and complete, and if implicitly followed by those to whom the instructions therein contained are given, very effective in securing safety. It does not appear to the committee that much if any fault can be found with these rules themselves. But it is not altogether plain to them that these rules are always observed with that degree of attention and exactness which their importance, in view of the consequences which may follow their infraction, requires. And while there seems to be but little fault in the codes of rules themselves, it is doubted by your Committee whether the methods used to secure their observance and the discipline employed to prevent a disregard of them are the best which might be employed. Nothing can be more explicit than the rules of the New York Central & Hudson River Railroad, which prescribe the duties of those in charge of a train situated as was the train stopped at Spuyten Duyvil, and nothing can be plainer from the testimony taken by your Committee than the fact, that if the requirements of those rules had been exactly followed by any one of the two employees on that train who had specific duties assigned to them under the circumstances, or by the engineer of the approaching train, the accident would not have occurred, unless in the case of the conductor it may be supposed that the brakeman would have disobeyed or neglected the instructions of the conductor when given to him. How often risks of similar disobedience had been theretofore taken with impunity, and how far similar disobedience is habitual among the employees of the road, it is difficult to ascertain. No such disobedience is tolerated by the management of the road, as sufficiently appears by the evidence, and punishment for such disobedience seems to be enforced by immediate discharge. But the inference to be drawn from the fact that in the case of each one of these three employees in this particular instance, upon whose conduct the safety of the two trains depended, there was remissness in the discharge of his duty and in exact obedience to rules, does not lead to the conclusion that risks in these respects are infrequent or that they may not be habitual.

#### LEGISLATION TO SECURE BETTER DISCIPLINE.

Whether it is possible or not to secure more perfect discipline in these respects over so many employees so widely distributed as are railroad employees, by legislative enactment, is a matter upon which your Committee have not formed an opinion; the subject is suggested to the Legislature as worthy of its consideration, and also the question whether there should not be some provision of law making negligence of officials charged with duties of the character indicated punishable, without regard to the consequences entailed by the neglect, as a criminal offense.

#### FREQUENCY OF ACCIDENTS TO EMPLOYEES.

Accidents to employees of railroads seem to be more frequent than to those who make use of the road for travel. The fact is attributed to the recklessness and negligence of the employees themselves, a recklessness and negligence which are said to arise from the frequent contact of such employees with danger, by which they become inured to its presence and acquire a disposition to disregard it, and thus omit the precautions necessary to avoid it. The conclusion arrived at from the testimony taken by your Committee is that far more care is taken by the companies in respect to the safety of passengers than in regard to that of their employees, and especially of those engaged in the freighting department of the roads. And your Committee beg to call the attention of the Legislature to the testimony taken upon this subject, and to the question whether it is expedient to adopt more exacting and stringent rules with reference to the liability of employers to their employees engaged in such duties and those which now exist.

There seems to be but little question but that a large proportion of the accidents which occur to railroad employees in the discharge of their duties are not reported to the state, or at least not reported with such particularity and fullness of detail as to render any intelligent generalization possible as to their causes. And your Committee deem it to be important that some system should be adopted by the companies which will insure more adequate and explicit information to the state and the public in this respect, and they beg to suggest that the subject is worthy of the attention of the Legislature, in the interest and for the safety and welfare of the employees, and that the companies should at least be compelled to use all machinery of known practical utility for the protection of their employees.

Investigations into the causes of accidents have been continually made in England under the direction of the English government, and the reports to parliament on the subject are full and suggestive, and have led to what is believed to be, if not greater safety, greater care in the matter of comfort and convenience in railway travel, and greater subjection on the part of railroad officials and managers to rules and laws established for their government. The duties and jurisdiction of the Board of Trade in England in these respects are very important and extensive, and are exercised with many beneficial results to the traveling public.

#### SUBSTITUTION OF MECHANISM FOR MEN.

The fallibility of human agency is undoubtedly the source of the greatest number of railroad accidents, and when the very great number of employees and operatives upon whose faithfulness and carefulness and attention, the safety of passenger traffic depends is considered, the value of any system which enables the management to dispense with such agency can be estimated. It seems to be desirable that railway management should attain as far as possible to two results.

1st. A substitution, so far as practicable and reliable, of mechanical means, for human agency.

2d. A simplification of the working of such mechanical means.

A noticeable substitution of mechanical for human agency is found in the system in use on the New York Central & Hudson River Railroad of interlocking signals, and the operation of that system is believed to be so excellent and useful that its extension to other roads which have not adopted it would in the judgment of your committee greatly conduce to safety.

Your committee have taken some testimony upon the subject of the system of signaling known as the "block system," and we find that there is no reason to doubt that this system, when in perfect use, that is to say when so used as to answer to the definition of what is termed the "absolute block system," is the best and safest which has yet been devised. It prevails upon the New York Central & Hudson River Railroad for a distance of five miles from the Harlem Junction, and is in extensive use upon the Pennsylvania Railroad, although it is said that upon the latter road its use does not entitle it to be called an "absolute block system." An effort was made to obtain the testimony of some officials of the Pennsylvania road, informed as to its work-

ing, on the subject of its use and value in the operations of that road; but, owing, not to any unwillingness of the officers subpoenaed, but to some inability to attend at the precise time appointed, such testimony was not taken. It is said by some of the witnesses that if this system had been in use upon the portion of the Hudson River Railroad on which the accident in question occurred, it would not have happened. This system of signaling is expensive, and is only believed to be feasible on roads where the travel is extraordinarily dense. Under such circumstances it is most useful and the traffic is said to be able to bear the additional expense entailed by it.

Attention of your Committee has also been directed to the system of signaling in use on what is known as the Fitchburg road, which is supposed to be almost entirely automatic, and which is highly commended for its usefulness and practicability by the Superintendent of that road, and by the authorities of Massachusetts in their reports.

#### NEW YORK CENTRAL MANAGEMENT COMMENDED.

It is proper to state that the investigations of your Committee have been largely directed to the management of the New York Central & Hudson River Railroad, and your Committee feel it but just to commend the enterprise and diligence of that company in adopting all such appliances as commend themselves to the judgment of their officers, for securing the safety of railroad passenger travel.

Your committee beg to commend the testimony taken by them to the perusal of the members of the Legislature, as suggestive upon the subject of legislation on this important matter of railroad disasters and the remedies for them. While your Committee are entirely satisfied that present modes of travel by rail are the quickest, the most convenient and the safest, ever in use, and while they are aware that the number of cases of death and injury resulting from accidents in such travel is very small indeed in proportion to the amount of such travel, they nevertheless conceive it to be one of the important duties of legislation to consider and provide means for securing the best systems, most conveniently and the most securely managed, which are possible in railroad management.

Your committee have made inquiries upon various topics, which will appear by examination of the testimony taken, and they suggest especially that the testimony taken on the subjects of highway crossings, the height of bridges, the crossings of one railroad by another, the construction of freight cars, with reference to the security of the hands employed on them, the uniformity of signals and other matters of like nature may be carefully considered.

Respectfully submitted,

ABRAHAM LANSING,  
EDWARD B. THOMAS,  
D. MCCARTHY,  
THOS. F. GRADY,  
JAMES W. COVERT.

ALBANY, June 1, 1882.

#### What English Investors Think of American Railroads.

It may be that many of the American railways are as good and sound as English of equal class, but there is one circumstance which is adverse to shareholders in Yankee lines—the fluctuation in the prices are extreme and never ending. They dance up and down as if madness guided their course. A man who buys stock of the best line at what he considers a fair price is sure to be placed under the bewilderment of violent fluctuations. The day after he has bought he may be unpleasantly startled by his stock being "down," and the value of his property, without any reasonable cause, less by hundreds or thousands; but a day or two further on up it flashes, and he is largely in pocket, that is provided he sells, and can reach the Stock Exchange before another violent shock occurs. This sort of thing is not to the taste of the British investor, who on principle declines to bet, and as a matter of inclination prefers stable stocks. The quicksilver of American stocks is so everlastingly in motion that they may presently get out of fashion on the London markets. People of a substantial order do not like their property to be "either up a tree or down a well." They want something they can rely upon for income, and not "investments" at a high premium one day and at a frightful discount the next. Such movements may be very well for speculators and gamblers, but they disgust investors. With regard to these American lines, also, there seems to be two markets continually pegging away at prices. There is a London market, and there is a New York market. Both quote prices and dodge each other in daily fluctuations. We should think that a man who had all his property in American shares could hardly fail to go mad. He might, however, save his pocket and his intellect by reducing his stake in the ordinary stocks of American companies and placing the money on the firmer foundation of approved American mortgages. We believe there are many American railroad mortgage bonds which are nearly as secure as first-class English railway debenture stock, and are practically quite as much so. But the Americans are behind the times in their management in this respect. They have not as a rule sufficient regard for security. They do not apparently understand raising money at 4 per cent. Many American railroad bonds, although highly covered, bear 6 per cent. interest, and yet command no high price. Nor can they ever, being payable off within a comparatively short period at par. What extravagance! Why could not our cousins husband their credit, and issue perpetual debenture stock, as we do, and as the Canadian railway companies do? Our high-class 4 per cent. railway debenture stock is at a considerable premium, a premium of 16 or 17. It is true the Canadian railway debenture stocks do not rank at so high a price as this, but the Grand Trunk 5 per cent. debenture stock is at about 17 premium, and the Great Western of Canada not far from it. If the Canadian lines were as prosperous as the English their debenture stocks would rank nearly as high, and we see no solid reason why high-class American railroad debenture stocks should not be as popular with the investing public. But at present the Americans have no debenture stock. They seem to prefer paying extravagant prices for borrowed money. Perhaps they are conscious that their occasional wars of rates and their existing laws are not favorable for high credit, but are suited only for 6 per cent. bonds, repayable at par by sinking funds. However, if they like to pay high rates of interest there are many in this country who are pleased to receive them. If they will not do the right thing to command high credit they must take the consequences.—*Herapath's Railway Journal.*

#### Transportation in Congress.

In the Senate, on the 7th:

Mr. Jonas, from the Committee on Railroads, reported back with a written report the petition of citizens of Louisiana for the forfeiture of the land grants to the New Orleans, Baton Rouge & Vicksburg Railroad. In reply to an inquiry by Mr. Cameron (Wis.), Mr. Jonas stated that the committee saw no reason for a forfeiture of the grants, as the proposed road had been built by another company, the assignee of the original grantee, which had power to



make such assignment. Upon his motion the committee was discharged from consideration of the subject.

In the Senate on the 12th:  
Mr. Conger reported favorably from the Commerce Committee the House bill authorizing the Sioux City & Pacific Railroad Company, an Iowa corporation, to construct a bridge over the Missouri River. He said the bill had been amended to comply in all requirements for the safety of navigation with the bridge bill reported in the House. The bill was passed.

In the House on the 13th:  
A report of the minority of the Judiciary Committee on the Northern Pacific Railroad land grants prepared by Representative Payson, and signed by him and Representatives Hammond, Culberson, McCoid, Knott, Manning and Townsend, was submitted to the House. The report is very exhaustive upon what the minority consider the vital question at issue, viz.: Is there the right of forfeiture as to all unpatented lands within the limits of the grant to this road, so that the United States may revert itself with the title thereto as in its former estate by declaration of forfeiture? The report answers this question affirmatively, and is based upon the language of the different acts bearing upon this subject, especially the eighth and ninth sections of the act of 1864, and upon judicial decisions and opinions of the Attorney-General. Representatives Knott and Townsend will also submit a joint resolution declaring the unpatented land forfeited, so as to bring the entire question before the House for discussion.

### THE SCRAP HEAP.

#### Locomotive Building.

The Pittsburgh Locomotive Works in Pittsburgh, Pa., recently delivered five eight-wheel passenger and five ten-wheel freight engines to the New Orleans Pacific road.

The Portland Co., in Portland, Me., is building 24 engines for the Northern Pacific, and one for the Ogdensburg & Lake Champlain road.

The Pennsylvania Railroad shops at Altoona, Pa., have received orders to build 35 class M shifting engines.

The West Albany shops of the New York Central road have just finished a special engine for General Superintendent Toucey. It has 12 by 22 in. cylinders and four 5 ft. drivers. The cab covers nearly the whole engine and has accommodations for the Superintendent apart from the engineer.

The Grant Locomotive Works in Paterson, N. J., are at work on a heavy order for narrow-gauge passenger and freight engines for the Texas & St. Louis road.

#### Car Notes.

During the six months ending May 31, the Baltimore & Ohio shops at Mount Clare, Baltimore, built 26 passenger and 1,200 freight cars.

The new shops of the Baltimore Car Wheel Co., in Baltimore, are nearly finished and will soon be occupied.

Colwell & Canning of 115 Broadway, New York, have just placed orders for 250 box cars for the Toledo, Cincinnati & St. Louis road.

The Jacksonville Car Co. at Jacksonville, Ill., has called a meeting of its creditors. The liabilities are \$140,000, and it is thought that everything can be paid in full, if the creditors agree to an extension. The present embarrassment is in consequence of the canceling of several orders, and the refusal of a Texas company to take a lot of cars which are now nearly or quite finished.

The Portland Co. in Portland, Me., is building several open excursion cars for the Old Orchard Beach road.

The sum of \$61,600 has been subscribed to the stock of the new Kingston Car Works at Kingston, Ont., and contracts have been let for the buildings.

The New Orleans Pacific Co. is building shops at Westwego, La., opposite New Orleans, where it is intended to construct all the freight cars for the road.

The Harlan & Hollingsworth Co. in Wilmington, Del., have just launched the new ferry boat "Chicago," which is to ply between New York and Jersey City for the Pennsylvania Railroad.

#### Bridge Notes.

The Central Bridge Co., of Buffalo, N. Y., has taken the contract for the bridge over the Delaware River at Portland, Pa., for the Pennsylvania & New England road. It will be a Howe truss bridge, with one span of 170 ft. and three of 150 ft. each.

The Corrugated Metal Co. at East Berlin, Conn., has taken the contract for an iron highway bridge at Mill Valley, Mass., in the town of Amherst.

The contract for an iron bridge on the West Virginia Central & Pittsburgh road has been let to Wendell Bollman, of Baltimore.

#### Iron and Manufacturing Notes.

The Western Fence Co., of Chicago, has taken a contract to make a large amount of barbed wire fence for the Chicago, St. Paul, Minneapolis & Omaha road.

The shops and machinery of the George W. Snyder Co. at Pottsville, Pa., have been purchased by the Philadelphia & Reading Coal & Iron Co., and will be used as repair shops.

The Standard Coal and Iron Co. has bought Buchtel, Craft, Winona, Gore, Baird, Bessie, Fanny and Vilas furnaces and the two furnaces of the Hocking Iron Co. These furnaces are all in the Hocking Valley.

Rich deposits of hematite iron ore have been found in Allamakee county, Ia., about eighty miles from Dubuque.

The Central Virginia Iron Co. will soon begin to build a blast furnace near the Riverview mines, in Amherst County, Va.

Topton Furnace, at Topton, Pa., will go into blast next week, having been thoroughly repaired.

The Port Richmond Iron Works in Philadelphia are making two large vertical beam blowing engines for the Lackawanna Coal & Iron Co. The steam cylinders are 58 in. in diameter, the blast cylinders 93 in. in diameter and 10 ft. stroke.

The Reading Iron Works in Reading, Pa., are putting up a new steam hammer in the forge department.

The Keystone Pump Works of Thompson, Epping & Carpenter in Pittsburgh are building a number of large steam pumps for iron works and other factories.

Lucy Furnace in Pittsburgh is being repaired and will be ready to go into blast next month.

The E. & G. Brooke Co. put the Hampton Furnace, near Birdsboro, Pa., into blast last week, using charcoal as fuel.

It is reported that the Ward Axle, Brake and Coupling Co., of this city, are about concluding negotiations for the purchase of a manufacturing site at Monongahela City, and will probably go extensively into operations in that place. As it is the intention of the company to employ a large number of men, it will be a great acquisition to neighbors on the river.—*American Manufacturer, Pittsburgh.*

Pacific Furnace at Youngstown, O., went out of blast last week, after a run of 4½ years, during which it made over 90,000 tons of pig iron. Brown, Bonnell & Co. are the owners.

#### The Rail Market.

A fair business is reported in steel rails, with prices unchanged at \$47.50 to \$48 per ton at mill for winter delivery

### LOCOMOTIVE RETURNS, FEBRUARY, 1882.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	Miles operated.	MILEAGE.		MILES RUN TO.		AVERAGE TRAIN.	COST IN CENTS PER		COST PER MILE IN CENTS FOR						AVERAGE COST OF			
		Total.	Average per engine.	Ton of coal.	Cord of wood.	Passenger cars.	Freight cars.	Passenger car mile.	Freight car mile.	Passenger.	Freight.	Shores.	Material.	Repairs.	Total.	Coal, per ton.	Wood, per cord.	
Allegheny Valley, River Div.*	130	40	93,380	2,250	20.52	18.40	3.00	20.80	5.037	1.141	7.08	4.93	0.03	6.48	19.12	1.60	2.25	
Low Grade Div.*	120	22	42,551	1,924	26.30	18.00	2.60	19.20	5.231	1.323	7.49	4.70	0.70	6.70	18.50	1.60	2.25	
Buffalo, Pitts. & Western*	174	20	50,085	2,575	30.17	20.23	3.20	11.70	4.267	1.268	5.97	5.52	0.57	5.27	17.34	1.60	2.25	
Central Pacific, Western Div.*	200	30	78,616	2,384	47.63	17.12	...	...	...	...	1.91	13.67	0.54	3.76	24.02	6.45	4.50	
Northern & San Pablo Divs.*	104	30	78,920	2,631	35.61	18.31	...	...	...	...	3.32	18.13	0.50	7.77	40.45	6.45	4.50	
Visalia Div.*	157	16	42,750	2,672	32.31	20.23	...	...	...	...	2.56	23.76	0.44	0.13	7.47	34.36	6.45	4.50
Tulare Div.*	170	21	53,183	2,583	25.77	17.37	...	...	...	...	8.60	35.35	0.54	0.31	7.00	52.52	9.25	5.35
Los Angeles, Yuma, San Diego, & Wilma Divs.*	410	49	143,301	2,325	33.11	15.07	...	...	...	...	4.69	24.14	0.01	0.30	7.14	38.85	9.25	5.35
Gila Div.*	248	22	76,400	3,473	48.40	17.19	...	...	...	...	2.94	19.67	0.53	0.29	6.93	32.59	9.25	5.35
Tucson Div.*	219	37	80,935	2,903	36.22	16.46	...	...	...	...	2.50	23.00	0.55	0.45	8.40	37.95	9.25	5.35
El Paso & Rio Grande Divs.*	283	35	70,613	2,825	40.46	12.63	...	...	...	...	1.81	20.93	0.67	0.31	8.16	31.01	9.25	5.35
California Pacific Div.*	179	12	28,043	2,220	41.31	24.88	...	...	...	...	4.19	19.66	0.47	0.19	8.00	33.11	4.50	4.50
Stockton & Copperopolis*	49	8	5,550	1,850	...	58.42	26.94	...	...	...	2.59	7.76	0.39	0.93	10.51	17.60	4.50	4.50
Sacramento Div.*	119	41	73,597	1,700	...	20.11	22.11	...	...	...	3.74	17.23	0.42	0.52	8.90	30.71	4.50	4.50
Oregon Div.*	151	7	21,458	3,085	...	43.61	25.05	...	...	...	0.91	10.32	0.49	0.09	7.22	18.64	4.50	4.50
Truckee Div.*	205	27	59,540	2,905	30.38	18.61	...	...	...	...	4.19	19.66	0.47	0.19	8.00	33.11	4.50	4.50
Humboldt Div.*	309	21	51,769	2,406	43.02	22.04	...	...	...	...	7.18	15.02	0.43	0.33	7.91	30.87	6.45	4.50
Salt Lake Div.*	219	33	77,714	2,770	27.41	15.21	...	...	...	...	4.47	23.55	0.57	0.21	7.15	37.95	6.45	4.50
Chl. & Eastern Ill. Main Line	160	56	112,172	3,000	...	15.00	...	...	...	...	4.20	5.80	0.50	...	5.11	13.60	...	...
Terre Haute Div.*	65	7	28,935	3,000	...	16.00	...	...	...	...	3.50	5.20	0.40	...	6.20	15.00	...	...
Cleveland & Pittsburgh*	225	76	191,735	2,521	35.56	17.53	4.10	16.72	3.402	0.916	3.84	4.24	0.67	3.88	6.20	18.92	1.35	3.00
Del., Lacka. & Western.	90	28	73,321	2,610	...	20.93	...	...	...	...	2.49	...	0.01	...	5.17	8.27	...	...
Bloomington Div.*	90	28	79,698	2,599	39.94	13.01	3.10	16.90	3.944	1.038	3.31	6.34	0.96	1.29	5.22	18.04	1.56	1.56
Grand Rapids & Indiana.	332	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Illinois Central, Chicago Div.*	365	98	220,087	2,240	31.81	14.12	5.55	19.78	...	...	5.32	5.49	0.29	...	5.74	16.75	1.65	3.05
Middle Div.*	101	18	18,221	501	31.62	14.48	2.35	10.81	...	...	1.12	5.32	0.29	...	4.87	11.55	1.85	3.05
North Div.*	126	18	18,616	2,617	30.98	13.37	2.52	11.07	...	...	1.82	7.06	0.29	...	3.62	10.19	1.85	3.05
Springfield Div.*	113	12	21,776	2,063	32.12	17.01	1.90	11.88	...	...	6.26	4.57	0.31	...	5.15	15.40	2.40	2.40
Iowa Div.*	401	41	116,590	2,938	26.71	14.61	3.95	10.92	...	...	4.22	9.44	0.29	...	5.85	19.20	2.45	2.45
Jeff. Madison & Indianap.*	226	43	116,418	2,707	38.54	12.50	3.06	23.59	4.969	0.920	4.75	7.60	0.51	1.61	6.11	20.78	2.47	5.00
Kan. City, St. Jo. & Coun. Bl.*	247	42	125,448	2,977	35.80	22.60	3.90	20.50	...	...	3.80	5.81	0.29	...	5.10	14.90	2.30	5.00
Lake Shore & Mich. Southern.	...	85	183,338	2,156	33.64	67.63	24.57	...	...	...	3.65	7.91	0.27	...	6.08	17.93	2.60	5.00
Buffalo Div.*	128	26	126,363	2,634	31.58	26.91	...	...	...	...	5.03	7.42	0.31	...	5.97	18.76	2.27	5.00
Erie Div.*	200	26	54,567	2,090	35.43	14.22	4.10	16.88	3.750	1.190	5.81	1.38	0.35	...	1.97	15.28	1.97	5.00
Mich. Southern Div.*	231	39	539,849	2,336	33.71	79.57	18.63	...	...	...	7.74	9.27	0.35	...	5.98	19.36	3.10	4.50
Little R.R. Miss. Riv. & Texas.	155	14	27,770	1,628	...	50.00	5.00	...	...	...	2.51	3.80	0.84	1.81	6.80	10.75	...	...
Louisville & Nash., First Div.*	435	62	154,172	2,147	37.09	11.87	5.28	17.31	2.570	1.370	3.78	7.82	0.43	1.49	6.61	18.92	2.16	2.16
Louisville & Nash., Second Div.*	200	26	54,567	2,090	35.43	14.22	4.10	16.88	3.750	1.190	5.50	6.07	0.43	2.22	7.23	19.22	1.90	2.75
Memphis Div.*	139	17	31,749	1,698	34.91	14.10	4.14	10.85	3.620	2.340	2.45	6.09	0.42	1.95	6.15	17.79	2.31	2.94
Nash. & Decatur Div.*	122	23	81,103	3,483	23.61	14.57	4.24	15.13	3.380	1.900	3.77	7.53	0.35	1.15	6.43	19.98	1.69	2.90
North & South Ala.*	180	37	118,891	3,199	23.58	15.13	4.30	14.49	3.670	1.390	3.43	7.59	0.35	0.84	6.79	20.38	1.72	2.90
Mobile & Montgomery*	180	39	70,413	2,617	30.06	13.98	6.06	16.23	2.940	1.100	2.83	8.18	0.37	0.31	6.18	14.20	2.28	1.50
St. Louis Div.*	207	33	78,920	2,631	35.61	18.41	...	...	...	...	4.97	4.94	0.40	1.53	5.79	16.70	1.56	3.00
Ev., Hen. & Nash. Div.*	135	36	95,909	2,664	24.49	13.81	3.16	14.55	4.840	1.410	5.52	5.31	0.31	1.69	6.43	19.27	1.28	1.50
New Orleans Div.*	141	34	70,180	2,924	38.17	15.45	4.88	20.34	3.220	0.990	3.78	6.16	0.32	0.81	6.09	18.44	2.30	4.11
Pensacola & Seaboard Div.*	131	35	39,685	1,030	41.54	14.30	...	...	...	...	1.62	5.47	0.45	0.97	6.03	15.43	2.57	1.70
Louisville, Cin. & Lexington*	225	41	107,777	2,695	33.02	15.71	4.89	13.50	3.640	1.010	3.49	7.64	0.38	1.54	6.57	19.69	2.47	3.10
Marquette, Hough. & Ont.*	44	13	19,749	1,519	30.76	18.29	...	...	...	...	1.91	11.73	0.63	...	5.97	20.13	4.25	...
N. Y., Pa. & O., Eastern Div.*	225	74	262,932	3,539	37.92	13.85	6.10	21.50	...	...	3.92	8.10	0.43	...	6.09	18.44	2.20	...
Western Div.*	197	9	215,510	3,559	25.37	19.57	6.00	16.00	...	...	3.30	8.58	0.46	...	5.90	18.32	2.11	2.63
Mahoning Div.*	141	56	155,922	2,835	26.72	18.44	3.20	22.90	...	...	3.14	6.40	0.42	...	5.70	15.96	2.12	2.63
No. Cent., El. & Can. Divs.*	147	47	108,069	2,310	25.38	16.67	...	...	...	...	4.07	6.36	0.50	...	6.38	17.40	1.60	1.64
Ohio Central.	231	58	95,570	2,528	31.95	17.61	...	...	...	...	5.67	3.50	0.41	...	5.69	13.27	...	...
Pennsylvania, N. Y. Div.*	129	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Amory Div.*	214	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belvidere Div.*	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Philadelphia Div.*	203	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Middle Div.*	132	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Altoona Div.*	172	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pittsburgh Div.*	172	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tyone Div.*	162	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Penn. Div.*	104	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lewistown Div.*	93	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bedford Div.*	57	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Frederick Div.*	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Monongahela Div.*	54	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phila. Wl. & Baltimore.	98	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryland Div.*	87	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central Div.*	97	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delaware Div.*	97	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pitts., Ft. Wayne & Chicago.	493	164	478,008	2,917	33.79	15.65	4.60	15.90	2.946	1.160	3.87	5.56	0.75	1.54	6.29	17.96	1.17	1.17
Eastern Div.*	280	121	439,963	3,636	31.00	15.60	5.08	19.84	2.270	0.840	3.03	5.39	0.55	2.24	5.92	17.13	1.67	1.67
Western Div.*	197	39	138,226	3,541	42.90	12.49	4.81	15.00	2.561	1.04	3.36	4.90	0.65	3.06	5.68	17.72	2.10	1.63
P. C. & St. L. Div.*	247	105	287,469	2,738	27.24	18.62	6.22	17.92	2.160	1.250	8.66	3.64	0.52	2.81	5.92	21.45	0.85	2.08
West Jersey*	163	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Year ending Dec. 31:	786	170	4,773,911	28,082	41.19	10.27	...	...	...	...	3.73	7.33	0.60	...	7.50	19.25	3.17	...
Denver & Rio Grande*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fifteen months ending Dec. 31:	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chesapeake & Ohio.	...	143	4,512,083	30,905	33.35	13.89	...	...	...	...	3.80	3.50	0.60	...	5.20	13.10	...	...

\* Five empty cars rated as three loaded ones.

Switching engines allowed 6 miles per hour; helping engines, actual mileage.

Switching engines allowed 6 miles per hour.

Fuel not estimated.

Two empty cars rated as one loaded one.

Three empty cars rated as two loaded ones.





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#### EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Addressees.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

#### NEW YORK COMMITTEE REPORT ON RAILROAD ACCIDENTS.

On the train which was partly destroyed in the Spuyten Duyvil collision last January were many members of the New York Legislature, and one of the victims, Mr. Webster Wagner, was an old and prominent member of the Senate. Perhaps it was this which led that body to take more than usual interest in the calamity and to appoint a committee to inquire into the causes of that accident in particular, and to report "what, if any, legislation is necessary or expedient to prevent, so far as possible, similar accidents in the future." This committee submitted its report just before the close of the session, and we publish it in full elsewhere.

Not much is expected of a legislative committee appointed to consider some special subject in which there is no great public interest at the time it reports. It knows that it is not likely to command attention, and still less likely to secure action. To make a serious effort to do good work seems to most members labor thrown away, and with other important questions pending which require action, and concerning all of which no one member is likely to be well informed, it may seem, and may actually be, inexpedient to hunt up another which will hardly secure attention, because members' minds are already preoccupied, and if it does, will require that nearly all members except those who bring it forward be given a course of instruction as to its merits, from the elements up. It is common to lavish blame on legislative bodies because they fail to pass laws that are needed; but if we stop to think a little, and call to mind that it was only after years of consideration that we became convinced of the need of the legislation we now desire on one or two special subjects that we know most of; and that there may be fifty other subjects of equal importance which we do not pretend to understand, and that the legislators are likely to be called upon to pass laws on several of these, to them, obscure subjects in a single session; if we remember this, we say, we shall be slow to reproach our representatives for neglecting to make the good laws we want, but reserve our blame for the bad laws they too often pass for want of sufficient consideration.

The Senate Committee on Railroad Accidents, or some of its members, evidently took some pains to obtain information; but if it acquired any definite and decided views on the general problem submitted to it, that is, as to legislation to prevent such calamities as

the Spuyten Duyvil accident, it has not expressed them plainly.

The description of the Spuyten Duyvil accident itself and the report on the causes of it were formed, apparently, on the model of the admirable reports on accidents by the inspectors of the British Board of Trade. That the investigation by the Senate committee should be as effective as one by the inspectors was not to be expected. One of the advantages of the English practice is that it trains a body of scientific men in the very difficult art of investigating accidents. They learn what to look for and how to look for it, who has an interest in concealing facts, and who in revealing them. Experience in this should soon make them more skillful in this than experienced railroad men even, though, of course, the railroad officer will have a great advantage on his own road through his knowledge of the peculiarities of it, its appliances and its individual employes. The Senate committee of course were not experts in railroad operation and much less in railroad accidents. Some of them, however, were lawyers, and the examination of witnesses was the chief part of its duty, and for this it had certain indispensable qualifications.

And though it had no special technical qualifications for the task, it seems to have substantially got at the facts and to have eliminated some errors which were widely spread shortly after the accident. The description of the accident is clear, and the relations to it of the different responsible parties seem to be given accurately. It finds, after taking much testimony, that there is nothing to support the statement the brakes were applied by some one in a car pulling the safety cord, and the fact that the brakes went on gradually, and not suddenly, as they should if this cord had been pulled, makes it improbable. Further, it found that there had been some trouble with the brakes twice at stops shortly before the accident.

Further, the committee finds that the engineer of the Tarrytown train which ran into the express was at fault in running too fast around the curve which concealed the express. The rules of the road required that trains should slacken speed on such a curve; as it was, the engineer saw the danger signal when 375 ft. from the express. At full speed it was impossible to stop in this space; but with the speed slackened as the rules require the report says that the Tarrytown train probably could have been stopped in time to prevent a collision, and we may add that if it had not been prevented it would probably have been much less destructive if the speed had been considerably less at the moment of impact.

When we come to the recommendations of the committee as to legislation to prevent accidents, we find that it has been extremely cautious, and the report somehow conveys the impression that some members desired to make recommendations which the others opposed, and that they compromised by mentioning without recommendation. Almost the only positive recommendation is the sound negative one, that the state should not assume to share with the railroad companies the responsibility for the management of the railroads and the selection of safety appliances, either directly or through railroad commissioners, "at all events when there is any room for doubt as to what are the safest and best means to secure the end in view." But the committee says that "it is plainly practicable and expedient" that the state should require the companies to exercise the greatest care, and maintain its road, equipment and apparatus so that safety shall not be endangered by their condition. The committee, however, fails to point out how the state can enforce the observance of the equitable requirement which it finds to be "plainly practicable," and in fact the whole problem lies just here, and is by no means easy to solve. It is not at all surprising that the committee did not present a solution, but it should have done so if it found it so "plain."

The theory that the railroad companies will, in their own interest, take every precaution to secure safety the committee admits to be to a great extent true, yet it holds that it is a wise and proper precaution for the state to exercise such supervision and control as will more completely secure this. That is, it does not believe that the companies of their own motion will take every desirable precaution. This is doubtless true. The difficulty when the state steps in is that it is quite likely to do more harm than good, by enforcing methods which its officers are not so well qualified as the railroad officers to choose. Therefore, if what the state does is of a nature not to change the motives by which the companies are naturally impelled to aim at safety, but rather to sharpen them, it is most likely to be effective. A railroad company does not like to have accidents, because they are very costly and tend to divert travel to other lines.

If they were still more costly and otherwise injurious it would go to still more trouble and expense to avoid them. If the government says that it must use Smith's signals, Brown's brakes and Robinson's switches, and run its trains according to a government code of rules, it takes from it all responsibility, so far as these things are concerned, and absolutely prevents its making improvements in these directions. But if an inspector, with a reputation for knowledge in such matters, finds that it has had an accident because it kept its road or cars or signals or brakes in bad condition, or lacked approved appliances, or had unskilled or insufficient officers, or too little discipline in its force, it would hurt, and would make the costly accident still more costly.

The committee's report, however, has very little to say about accident inspection. It calls attention to the English system, but does not express itself very confidently as to its results, saying it has led, if not to greater safety, to "greater care in the matter of comfort and convenience"; which the accident investigations, we should say, have not done at all, while they have doubtless led to greater safety.

It is, perhaps, doubtful whether any single state can ever maintain an efficient system of accident investigation. There are, happily, hardly enough accidents in any one state to give an inspector much occupation, and to be expert he should have a good deal of practice. A national board of inspectors, such as was contemplated by the bill introduced into Congress by President Garfield shortly after the Ashtabula accident, with not too large a district assigned to one or more inspectors, would be more likely to be more effective. But we should have expected in this report some more definite endorsement of the value of investigation.

The committee finds that the rules of the railroads are sufficient, but that they are not always observed. But it has formed no opinion "as to whether better discipline can be secured by any legislative enactment." It suggests, however, that the Legislature consider the advisability of providing a punishment for negligence as a criminal offense in the cases where it does not happen to result in serious accident.

The committee also calls attention to the frequency of accidents to employes, and believes that the companies take much less pains to avoid these than to prevent accidents to passengers, and it calls the attention of the Legislature to the question of the expediency of adopting "more exacting and stringent rules with reference to the liability of employers to their employes."

An avoidance of the dangers due to human fallibility the committee looks for by the substitution of mechanism for men, such as interlocking signals, and the block system.

Finally, in submitting their report and the testimony taken by the committee, it says that it conceives it to be "one of the most important duties of legislation to consider and provide means for securing the best systems \* \* \* possible in railway management."

#### ELEVATED RAILROAD DAMAGES.

The full opinions of the Supreme Court judges of Brooklyn, N. Y., on the recent application to authorize construction of an elevated railroad through the city streets, have been published in the *Albany Law Journal* of May 27. They indicate a willingness to open a question which railroad men have long understood was settled in the negative: whether the companies are bound by the constitution to pay land damages for land which the operations of the road may depreciate in value, but which is not "taken" for the road. The constitutions generally declare that "private property shall not be taken for public use without just compensation." But it has always been considered that the prohibition does not apply when lands near a road, but not crossed by it, are injuriously affected in value, but are not occupied. The theoretic reason is that such lands are not "taken." For all lands they "take" the companies must undoubtedly pay damages. For those they do not take the constitution does not require them to pay. The Legislature might in any special case require as a condition of granting the franchise that the company should pay for hurting lands as well as for taking them. But railroads have generally been accounted a public benefit, a species of enterprise to be encouraged, and it seems to have been assumed in this country that if they paid for all the damage they did they would be too costly, which is as much as to say that they might do more harm than good and yet be desirable. The questions are asked: What would be the practical result of allowing every farmer incommoded, every villager whose property was reduced in value, to sue the company? Could the railroad system have grown un-



der such a burden? If the roads ought to make compensation when they injure adjoining property, ought they not to receive it when they increase values? Take elevated railroads for example: say that they inconvenience and indirectly injure lot-owners in the crowded heart of the city; do they not to a greater extent advance values of property in the outskirts? Ought not the company to be reimbursed by owners who gain by the enterprise for whatever they should be compelled to pay to those who indirectly lose?

But two kinds of benefits and damages are apt to be confused here. The very goodness of the service which the railroad performs injuriously affects some lands, while benefiting some. Cheap transportation from the Mississippi valley to England has greatly reduced the market value of British agricultural land, by enormously increasing the quantity of the land which competes for the supply of the British market. The building of the elevated railroads in New York has greatly increased the value of building lots in the upper part of the city, and has probably made the value of the lots below the Park less than they would have been without the road. These are the effects of the improvement in transportation, and are such effects as follow improvements of every kind. Damages of this kind it was never proposed to pay, any more than to tax for benefits of this kind.

The elevated railroads in New York have more than any other roads ever built, probably, caused actual damage to lands and houses which they did not touch. These roads were built in virtue of a simple permission to occupy the street, and without much attention in advance to the indirect injury which would be caused to buildings fronting the track. Yet this indirect injury has proved to be great. Stores are darkened and dwellings incommoded, business by day and sleep by night are interrupted, and prices and rentals reduced. The injustice of casting these ill consequences on the dwellers along the route is obvious. And, as our readers were some time ago informed, a suit has been brought in New York city to test the question whether corporations may not be required to pay damages where they injure property, although they have not "taken" it. In Brooklyn, the lot-owners, taking warning by the sufferings of their fellows in New York, objected at the outset to the proposal for building an elevated road that the scheme did not provide compensation for all who would be injured. And the judges agree in denying the application. One, Judge Dyckman, seems to rest his vote upon the grounds that to grant the authority denied is in some sense discretionary with the court, and that under the particular circumstances to grant it is not expedient. This does not disturb established rules of the law. Judges Barnard and Gilbert, however, appear to think that the courts ought perhaps to reconsider the doctrine that the constitution does not require compensation for what is only injuriously affected—not taken; and to believe that the road should not be made until this subject has been deliberately examined.

This is harmony with the practice in all European countries, we believe. In England the law which provides for the taking of lands for railroads says, in the provision for estimating compensation, that "regard shall be had not only to the value of the land to be purchased or taken, but also to the damage, if any, to be sustained by the owner of the lands by reason of the severing of the lands taken from the other lands of such owner, or otherwise injuriously affecting such other lands." And the English courts hold that to entitle a person to compensation for injuriously affecting his land it is not necessary that any part of it should have been actually taken. The owner of a house fronting on a highway which had been simply narrowed by land taken for a railroad was granted compensation for depreciation in the value of his house. In our issue of May 19 (page 301) we published a decision of a court of the German Empire, showing that the law there requires compensation to be made for injury to lands not actually occupied by the railroad.

It is questionable whether the extreme limitation in this country of the damages to land not actually occupied by the railroad has not been due to fear of admitting such indirect injury as is caused by cheaper transportation, and a consequent restriction of the term "taking" to the actual occupation of the land. The courts might do substantial justice by adhering to the rule that property need not be paid for (unless under some special law) unless "taken;" but they should look more narrowly and scientifically than has heretofore been usual at the question: What amounts to taking? Attorneys for claimants should be content to demand damages for land "taken;" but they should collect, as they easily may, scientific proof that the property chiefly vexed by an elevated road is in fact corporally "taken," in a degree; taken in part, though

not completely; occupied, though not used. Let us specify.

**Smoke and Dust.**—These are a very serious annoyance. The slightest scientific knowledge will enable the reader to see that the smoke consists chiefly of minute particles of half-burned fuel, the dust of atoms of iron, earth, etc., wafted by currents of air and cast upon the adjoining premises. Surely, if the company made it a constant practice to store coal and wood in a building, or to pile rails, building stone, wood and gravel upon a lot, the owner of the property occupied could justly claim that it was "taken." The same thing is done by smoke and dust. The difference is only in degree—in size of particles and in aggregate bulk. The adjoining premises are corporally occupied in both cases.

**Foul Odors.**—These involve the same principle as smoke and dust. Experts would testify that the offense they cause is produced by indefinitely small particles of matter coming over the land affected, and really, though in very small degree, occupying it.

**Noise.**—The popular mind does not perceive in this any actual occupying; but scientific men would testify that engines and trains set in motion "sound waves"—undulations in the air—which pass across the adjoining lands and beat against the drums of the ear of whoever may be in their course. Here is a real though scarce appreciable occupation of the premises. Were it necessary in the operations of a company to send a blast of air or current of water across an adjoining lot to the entire exclusion of everything else upon it, would any one dispute that the lot was "taken?" It is as truly taken, though in less degree, when a mere undulation is the cause of the injury.

**Jar.**—Scientific witnesses would say that this is caused chiefly by the blows of the wheels against incongruities in the track; that though the inequalities be less than the fiftieth of an inch, yet the impact of a 20-ton engine or car moving at a speed of 10 or 15 miles an hour against them is enough to set the track in a tremor; that this tremor is communicated to the iron standards or posts on which the tracks are laid, and passes, gradually weakening as it spreads, through other structures and the earth itself, until it shakes the buildings near. This is a "taking." Were it needful in the operations of a corporation for it to grapple with strong implements the trees in a man's orchard and shake them so that no fruit could ripen, would not the rule requiring a taking be met? Or—if we may liken the undulations of jar to the ripples seen in a pond when a stone is cast in—were it needful to keep the surface of water constantly disturbed so that the waves extending from the spot occupied the surface at a distance and rendered that useless to the owner there, would there not be a taking? The same thing is done when the movement of trains shakes the structure so violently as to impair comfort in adjoining dwellings.

**Darkening.**—Were it needful to build an opaque, unsurmountable wall around a lot on all four sides, every one would say that the lot was "taken." Then it is in a degree taken when a structure is erected along one side, which part excludes light and prevents access.

By lines of strict scientific inquiry in the general directions we have indicated, nearly all the serious special inconvenience which calls for redress from elevated roads can be traced to a corporal taking or occupying of the adjoining premises injured. Justice may be done on grounds like these, without shaking the principle that the roads are not chargeable for a general depreciation of property which they do not take. This view would solve also some perplexing cases which occur where surface roads run through thickly-settled spots, and by smoke, dust, odors, noise, jar and darkening, impair the actual use of buildings fronting their tracks. In a case of this sort in Pennsylvania, the Court thought no redress could be granted the injured house-owner. In a Chicago case, the Court allowed him some limited damages on principles harmonizing with those we advance.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

**Allegheny Central.**—Extended from Angelica, N. Y., north by east to Swains, 18 miles. Gauge, 3 ft.

**Chester & Lenoir.**—Extended from Lincolnton, N. C., north to Malden, 8 miles. Gauge, 3 ft.

**Chicago, Milwaukee & St. Paul.**—A branch is completed from Emmetsburg, Ia., north to Estherville, 22 miles.

**Chicago & Northwestern.**—The Winona & St. Peter line is extended from Watertown, Dak., west to Clark Centre, 31 miles. On the Sioux Valley Branch track is laid from Volga, Dak., northward 24 miles.

**Cincinnati, Selma & Mobile.**—Extended from Greensboro, Ala., northwest to Akron, 17 miles. Gauge, 5 ft.

**Denver & Rio Grande Western.**—Track laid from Salt

Lake, Utah, southward to Provo, 49 miles. Gauge, 3 ft. **Des Moines & Ft. Dodge.**—Track laid from Tara Junction, Ia., northward, 20 miles.

**East Tennessee, Virginia & Georgia.**—The Ohio Division is extended from Careyville, Tenn., north by west to Elk Gap, 10 miles. Gauge, 5 ft.

**Ft. Worth & Denver City.**—Extended from Decatur, Tex., northward 28 miles.

**Genesee Valley.**—New track is reported laid from Cuba, N. Y., north by east, 12 miles; from Nunda to Mt. Morris, 14 miles; from Nunda to Swains, 9 miles, and from Canawaugus south 6 miles; making 41 miles in all.

**Missouri Pacific.**—Track is laid on the Carthage, Joplin & Short Creek Branch from Carthage, Mo., southwest to Joplin, 18 miles.

**Rio Grande & Pecos Valley.**—Track laid from Laredo, Tex., northwest 7 miles. Gauge, 3 ft.

**Salt Lake & Western.**—Track laid from Lehi, Utah, westward to Boulder, 40 miles.

**Sioux City & Pacific.**—The Nebraska Division is extended from Long Pine, Neb., westward 12 miles.

**Texas & St. Louis.**—The Texas Division is extended from Mt. Olivet, Tex., southwest to McGregor, 3 miles. Gauge, 3 ft.

This is a total of 54 miles of new railroad, making 3,677 miles thus far this year, against 1,734 miles reported at the corresponding time in 1881, 1,613 miles in 1880, 682 miles in 1879, 432 miles in 1878, and 583 miles in 1877, 687 miles in 1876, 312 miles in 1875, 570 miles in 1874 and 1,271 miles in 1873.

CHICAGO & NORTHWESTERN EARNINGS are reported for the fiscal year ending with May last (the returns for May subject to some corrections) as follows:

	1881-82.	1880-81.	Increase	P. c.
Passenger.....	\$5,146,004.74	\$4,158,129.81	\$988,874.93	23.8
Freight.....	17,517,372.17	14,414,151.00	3,103,221.08	21.5
Express.....	355,727.88	310,233.24	45,494.64	14.7
Mail.....	431,658.76	297,380.02	134,278.74	45.2
Miscellaneous...	180,088.51	154,177.89	25,910.62	17.0
Total.....	\$23,631,842.06	\$19,334,072.05	\$4,297,770.01	22.2

The average length worked was 2,644 miles in 1880-81, and about 3,100 miles last year, so that the earnings per mile of road increased from \$732 to about \$762. As the increase in mileage was very large and was all new road, this increase in earnings, in a year of less than the average crops, though of more than the average growth in population and business activity, was very favorable. For three successive years the average mileage worked and the earnings have been:

	1879-80.	1880-81.	1881-82.
Mileage.....	2,216	2,604	3,100
Passenger earnings.	\$3,737,443	\$4,168,330	\$5,146,995
Freight.....	12,800,520	14,306,482	17,517,372
Other.....	811,386	859,260	967,475
Total earnings.....	\$17,349,349	\$19,334,072	\$23,631,842

Thus with an increase of about 40 per cent. in mileage in two years, there has been an increase of 37½ per cent. in passenger earnings, of 37 per cent. in freight earnings, and of 36½ per cent. in total earnings. It is not probable that the net earnings have quite kept pace with this; if they have, the condition of the company is extremely promising. To add 900 miles of road in two years, and yet have the earnings per mile fall only from \$783 to \$762 argues a marvelous growth in the country served by the company's lines; and as on many of the new lines the country has only fairly begun to grow, there is room for a great addition to the traffic, which is sure to come, though with greater or less rapidity according to circumstances. With immigration such as we are now having, and with good crops this year, of which there is now a fair prospect, and especially with the occupation of most of the very cheap lands further south, the addition is likely to come rapidly.

LAKE RATES after standing at 2 cents a bushel for corn from Chicago to Buffalo for several weeks, have advanced gradually during the past two weeks to 3 cents—a movement that is very unusual at this season of the year. Previous to the advance, the lake shipments for two or three weeks had been the lightest for years, and an unusually large number of vessels usually engaged in grain-carrying had accepted charters for carrying ore from Lake Superior, and an increase in shipments, which, however, left them very light for this time of year, caused rates to advance rapidly. That the lake shipments are still light, however, may be seen from the following comparison of the number of bushels shipped from all the Western ports each week this year and last, from the time navigation was opened last year:

	May 6.	May 13.	May 20.	May 27.	June 3.
1882.....	1,926,245	1,838,027	616,656	915,547	1,380,923
1881.....	3,105,834	2,617,205	3,742,657	3,556,255	2,790,603

Thus in the latter week even the shipments were only about half as great as last year, and yet there was a scarcity of vessels. The lake shipments for the five weeks were 6,696,398 bushels this year, against 15,812,554 last year—a decrease of nearly 60 per cent.

Canal rates about two weeks ago fell off about half a cent a bushel, to 3½ cents for corn and 4½ for wheat from Buffalo to New York, but for a week or more past the prevailing rate for corn has been 3½ cents. Wednesday there was a further advance of ½ cent.

Ocean rates have advanced, under a slight increase of exports. Until recently they had for some weeks varied from nothing to 1d. a bushel, generally ½d. to 1d., but within a few days there has been a rise to 2d. and 2½d., and even 3d. has been asked. These are, however, still very low rates.

At the rates ruling last Tuesday, it cost about 12½ cents to send a bushel of corn by water from Chicago to Liver-



pool. Last year at this time it cost about 16 cents; in 1880, 35 cents. From Chicago to Buffalo the cost was about 7½ cents this year, 9 cents last year, and 15 cents in 1880. The reduction in rates this year is due wholly to the greater competition among lake vessels and canal boats, for the actual rates charged by rail are higher this year, and the competition by the Mississippi River barges has ceased entirely.

**CHICAGO RAIL SHIPMENTS EASTWARD** for the week ending June 3 were 26,762 tons this year, against 40,029 in the corresponding week of 1881, 32,408 in the corresponding week of 1880 and 27,124 in the previous week of this year. The shipments are just about equal to the average of the past six weeks. Though smaller than in any other period of equal length for the four years that a record has been kept, they are only 11 per cent. less than in the corresponding six weeks of 1880, which was the year of greatest profits from these shipments.

Of the shipments for the week ending June 3 last 11.5 per cent. were by the Chicago & Grand Trunk, 20.5 by the Michigan Central, 17 by the Lake Shore, 32.8 by the Fort Wayne, 11.5 by the Pan-handle and 6.7 per cent. by the Baltimore & Ohio. Thus the two Vanderbilt roads had 37.5 per cent. of the whole, and the two Pennsylvania roads 44.3 per cent.

For the week ending June 10 the shipments billed from Chicago, not including those received at Chicago by the roads to the East billed through from point's west of Chicago, were 21,764 tons, against 19,407 tons the previous week and 31,102 tons in the corresponding week of last year. Of the total shipments 1,770 tons were flour this year, against 4,120 last year; 12,450 were grain, against 17,540 last year, and 7,543 were provisions, against 8,686 last year. Thus of the total decrease of 9,338 tons 7,431 were flour and grain.

**MAY EARNINGS** so far reported are for many roads not so favorable as those of previous months, in comparison with last year; but in some cases this is due to the fact that traffic was limited by bad weather before May last year, which gave us unfavorable months to compare with; while in May there was accumulated business that but for the weather would have been done earlier, which made it a month of something more than average business. Most of the Northwestern roads had smaller earnings per mile this year than last, the chief exceptions being the St. Paul, Minneapolis & Manitoba and the Northern Pacific, which had great gains. On the other hand, the Southwestern roads show smaller decreases than heretofore. All the roads with much trunk-line traffic show a decrease, except the Chicago & Grand Trunk. On the whole, the roads so far reporting in the aggregate show a small decrease in earnings per mile. The reports for the first week of June show a large decrease on some roads; but as traffic was extraordinarily large on most Western roads in June last year, there is nothing to be alarmed about in this.

## General Railroad News.

### MEETINGS AND ANNOUNCEMENTS.

#### Meetings.

Meetings will be held as follows:  
*Central, of New Jersey*, special meeting for election of directors, at the office in Jersey City, June 23; polls will be opened from noon to 3 p. m. Transfer books closed June 2.  
*Ogdensburg & Lake Champlain*, annual meeting, in Ogdensburg, N. Y., June 21.

#### Railroad Conventions.

The *Master Mechanics Association* will hold its annual convention at Niagara Falls, beginning on June 20.

#### Dividends.

Dividends have been declared as follows:  
*St. Paul, Minneapolis & Manitoba*, 3½ per cent., semi-annual, payable Aug. 1. Transfer-books close July 19.  
*Central, of Georgia*, 4 per cent., semi-annual.  
*New York & Harlem* (leased to New York Central & Hudson River), 4 per cent., semi-annual, payable July 1. Transfer-books close June 15.  
*Philadelphia, Wilmington & Baltimore*, 4 per cent., semi-annual, payable July 1.  
*Peoria, Decatur & Evansville*, 3 per cent. on the income bonds, out of the earnings of the half-year, payable July 1.  
*Chicago, St. Paul, Minneapolis & Omaha*, 1½ per cent., quarterly, on the preferred stock, payable July 20. Transfer-books close June 30.  
*Lehigh Valley*, 1½ per cent., quarterly, payable July 15. Transfer-books close June 17.  
*Flint & Pere Marquette*, 3 per cent., semi-annual, on the preferred stock, payable July 17. The preferred stock represents the former consolidated bonds.  
*Western Union Telegraph*, 1½ per cent., quarterly, payable July 15. Transfer books close June 20.

#### Foreclosure Sales.

The *Utah & Pleasant Valley* road was sold in Salt Lake, Utah, June 12, by the trustees under the mortgage, and bought by Wm. M. Spackman, in the interest of the Denver & Rio Grande Western Company. The road extends from Provo, Utah, to the Pleasant Valley coal mines, 60 miles. The only accessible information puts the amount of the bonds at \$900,000.

The *Galveston, Houston & Henderson* road will be sold in Galveston, Tex., Aug. 1, under a decree of the United States Circuit Court foreclosing the first mortgage of \$1,500,000. The purchaser will be required to pay costs and expenses of suit; the sum of \$106,792 due for loans and advances, with 10 per cent. interest from Jan. 1, 1882; the sum of \$155,928 for coupons matured prior to Jan. 1, 1880, with interest at 7 per cent. from Jan. 1, 1882. Any balance over these sums may be paid in bonds and overdue coupons. The road extends from Galveston to Houston, 50 miles.

#### Southern Railway & Steamship Association.

The following circular from General Commissioner Virgil Powers is dated June 10:  
"A meeting of the Rate Committee is hereby called, to meet at No. 46 Bond street, New York, Wednesday, June 21, at

10 o'clock, a. m., to consider changes of classification, rates, et."

"In accordance with the rules, all members of the Association, or lines working with it, are invited to send representatives of their lines, if desired, to this and all sessions of the Rate Committee.

"Should circumstances necessitate a change of place or date of meeting, I will notify the Committee."

#### Central and Southern Pacific Railroad Employees' Mutual Benefit Association.

At the annual meeting of this Association in San Francisco last week the total membership was shown to be 295; 62 had joined during the year and three had died, to the heirs of whom \$750 each had been paid.

Officers were elected and the usual routine business was transacted.

A feature of the meeting was the receipt of a letter from C. P. Huntington, under date of New York, May 30, in which, after urging the members of the association to reach out for a high moral and intellectual standard, he says: "I much approve of your Association and think you ought to have a good library with good rooms where it would be both pleasant and profitable for you to meet, and for that purpose I would contribute \$5,000 and have no doubt my associates would do as much. I will send you the money to invest, if such is your pleasure, there, or, what perhaps would be better, I to spend it for books here after receiving list from you of such ones as you would like, or I would use my own judgment in selecting a portion of them if you should desire me to do so. With my best wishes that in this, as in all other undertakings of yourself and associates, your most sanguine hopes will be more than realized," etc. The Association returned to Mr. Huntington thanks for his kind expressions and generous offer.

### ELECTIONS AND APPOINTMENTS.

*Atchison, Topeka & Santa Fe*.—Mr. George O. Manchester has been appointed Assistant to the President. He was formerly Assistant General Manager of this road and more recently General Manager of the Leavenworth, Topeka & Southwestern road.

Mr. J. O. Philippi has been appointed General agent in Chicago in place of Mr. S. B. Hynes, assigned to other duties. Mr. Philippi has been for some years General Agent at Council Bluffs for the Chicago, Burlington & Quincy.

*Baltimore & Drum Point*.—At the annual meeting in Baltimore, June 7, the following directors were chosen: Augustus Albert, Andrew Banks, Wm. H. Biana, W. G. Butler, M. P. S. Iglehart, Benjamin King, Henry Owings, James A. Stewart, of Maryland; John Oaner, Samuel Remington, P. V. Rogers, Joseph R. Swan, Jr., New York. The board elected Augustus Albert President; M. G. Butler, Secretary; Andrew Banks, Treasurer.

*Boston, Hoosac Tunnel & Western*.—The following circular from Mr. Wm. V. Reynolds, Secretary, announces official changes, some of which have already been noted:

"At a meeting of the directors of this corporation held at the office of the company, No. 60 Equitable Building, Boston, Mass., on Saturday, June 3, 1882, Hon. Ginery Twichell was elected President in place of Wm. L. Burt, deceased; Wm. V. Reynolds was elected General Manager; C. T. Church was elected Chief Engineer in place of E. M. Leuffler, resigned.

"The business address of the President will be No. 60 Equitable Building, Boston, Mass.; of the General Manager will be Mechanicville, N. Y.; of the Chief Engineer will be Mechanicville, N. Y."

*Canadian Pacific*.—Mr. J. C. James is appointed Chief Engineer and Superintendent of Construction. He was recently Chief Engineer of the Chicago & Grand Trunk.

*Central, of Georgia*.—The Board has elected Mr. E. H. Green, of New York, a director, in place of Moses Taylor, deceased.

*Central & Southern Pacific Railroad Employees Mutual Benefit Association*.—At the annual meeting in San Francisco last week the following officers were chosen: President, E. B. Ryan; Vice-President, J. O'B. Gunn; directors, F. S. Dooty, J. E. Foulds, E. F. Gerald, C. A. Grow, Richard Gray, H. R. Judah; Secretary, G. L. Lansing.

*Charleston, Martinsville & Nashville*.—The directors of this new company are: Wm. E. Adams, O. B. Ficklin, L. Monroe, Charleston, Ill.; John B. Briscoe, Westfield, Ill.; S. A. Fasi, John Gamble, Wm. Lindsey, Martinsville, Ill.; E. Pratt Buell, Warsaw, Ill.; J. C. Allen, Olney, Ill.

*Chicago & Grand Trunk*.—Mr. A. B. Atwater is appointed Chief Engineer, with office at Battle Creek, Mich., in place of Mr. J. C. James, who goes to the Canadian Pacific.

*Chicago, St. Paul, Minneapolis & Omaha*.—Mr. J. H. Hiland is appointed Traffic Manager in place of F. B. Clark, resigned. Mr. Hiland has issued the following circular:

"Pursuant to the above, the following appointments are made, to take effect at once: W. H. Truesdale, Assistant Traffic Manager, with office at St. Paul; J. A. Munroe, Assistant Traffic Manager, with office at Minneapolis; T. W. Teasdale, General Passenger and Ticket Agent, with office at St. Paul; F. B. Whitney, General Agent, with office at Omaha."

*Chicago & Western Indiana*.—At the annual meeting in Chicago last week the old directors were re-elected as follows: Andrew Crawford, Charles B. Sawyer, Roswell Miller, Joseph T. Torrence, J. B. Brown. The following officers were elected: President, J. B. Brown; First Vice-President, Andrew Crawford; Second Vice-President, Roswell Miller; General Manager, G. S. Griscom; Secretary and Treasurer, A. S. Dunham.

*Cincinnati, Hamilton & Dayton*.—At the annual meeting in Cincinnati, June 13, the following directors were chosen: John Carlisle, E. A. Ferguson, E. N. Larzelle, F. H. Short, Cincinnati; C. R. Cummings, Chicago; C. S. Brice, Lima, O.; George R. Blanchard, Hugh J. Jewett, C. C. Waite, New York. Of these directors Messrs. Blanchard, Jewett, and Waite represent the Erie interest; Messrs. Brice and Cummings the New York, Chicago & St. Louis, and the others the local stockholders. Messrs. Carlisle and Jewett are the only directors who were in the board last year. Mr. Short has been Secretary and Treasurer for many years, has been several times a director and was for one year President of the company.

It is said that Mr. Jewett will be President; Mr. Waite, Vice-President, and that Mr. Short will continue to be Secretary and Treasurer.

*Cincinnati & Ohio River*.—At the annual meeting, held June 13, the following directors were chosen: Theodore Cook, J. F. Follett, W. A. Goodman, Wm. Ramsey, Cincinnati; Orland Smith, Columbus, O.; W. A. Hutchings, Portsmouth, O.; A. J. Warner, Marietta, O.; James G. Blaine, Augusta, Me.; Marshal Jewell, Hartford, Conn.; H. C. Parsons, New York.

*Eastern Classification Committee*.—Commissioner Fink has just issued a circular announcing that W. S. Speirs having left the service of the Wabash, St. Louis & Pacific, and as his membership on the Classification Committee thereby ceases, at the recommendation of the Classification Committee, Mr. W. S. Weed is appointed to fill the vacancy. Mr. J. M. Osborn having also resigned as a member of the committee, Mr. A. C. Bird has been appointed in his place.

The Classification Committee now consists of the following members: F. H. Kingsbury, Pittsburgh, Cincinnati & St. Louis, Chairman; J. F. R. McKay, Lake Shore & Michigan Southern, Secretary; G. G. Cochran, New York, Pennsylvania & Ohio; J. A. Grier, Michigan Central; H. W. Hibbard, Vandalia; R. M. Frazier, Marietta & Cincinnati; C. L. Cole, Pennsylvania Company; R. W. Geiger, Jeffersonville, Madison & Indianapolis; A. B. Leet, Grand Rapids & Indiana; Lucien Hills, Cleveland, Columbus, Cincinnati & Indianapolis; G. B. Spriggs, Great Western; W. S. Weed, Lake Erie & Western; A. C. Bird, Wabash, St. Louis & Pacific.

*Genesee Valley*.—At the annual meeting in Rochester, N. Y., last week, the stockholders elected the following directors: J. Breck Perkins, H. C. Roberts, Henry Barnard, J. E. Butterfield, Lewis Selye, C. E. Upton. The following were chosen by the City Council of Rochester: F. S. Upton, D. W. Powers, Amos Bronson, John Lutes, G. H. Perkins, James Brackett, W. N. Sage. At a meeting of the board, the following officers were re-elected: President, James Brackett; Vice-President, William N. Sage; Secretary and Treasurer, C. E. Upton.

*Green Bay, Winona & St. Paul*.—At the annual meeting in Green Bay, June 7, the old board was re-elected as follows: W. J. Abrams, Rufus B. Kellogg, Green Bay, Wis.; C. Larned, Chicago; John I. Blair, Blairstown, N. J.; Benj. G. Clark, Jersey City, N. J.; Wm. E. Dodge, Edwin F. Hatfield, Percy R. Pyne, Samuel Sloan, Theodore Sturges, New York.

*Kansas City, Lawrence & Southern Kansas*.—Mr. S. B. Hynes has been appointed General Freight and Ticket Agent. He was recently Chicago agent of the Atchison, Topeka & Santa Fe.

*Milwaukee & Northern*.—At the annual meeting in Milwaukee, Wis., June 8, the following directors were chosen: F. Vogel, Milwaukee; A. S. Gear, New York.

Mr. Chas. F. Dutton is appointed General Superintendent. He has been superintendent of the line as the Milwaukee Division of the Wisconsin Central.

*New York, Lake Erie & Western*.—Mr. John W. Romaine has been appointed Emigrant Agent, with office at No. 5 Battery place, New York, in place of N. Muller, resigned. Mr. Romaine has been connected with the company for 20 years in various capacities, nearly all the time in connection with the emigrant business.

*North Shore*.—This company has been organized by the Senecal Syndicate, which has bought the Eastern Division (Quebec to Montreal) of the Quebec, Montreal, Ottawa & Occidental road from the Quebec government. It has a very numerous board of directors, as follows: T. McGreevy, P. V. Valin, J. G. Ross, N. Turcotte, W. J. Withall, G. Bresse, C. Samson, W. E. Carrier, F. E. Normand, A. Desjardins, M. H. Gault, L. A. Senecal, J. McDougall, V. Hudon, A. Buntin, V. Prevost, J. B. A. Mongenais, J. M. Dufresne, J. B. Renaud, J. O'Brien, D. Morrice, R. Cowan, of Canada; Bradley Barlow, St. Albans, Vt.; R. J. Kimball, New York.

*Pennsylvania Company*.—At the annual meeting in Pittsburgh, June 6, the following directors were chosen: Wm. H. Barnes, J. N. McCullough, Thomas D. Messler, Wm. Thaw, Pittsburgh; A. J. Cassatt, J. N. DuBarry, Samuel M. Felton, J. P. Green, H. H. Houston, Wistar Morris, Henry M. Phillips, George B. Roberts, J. Price Wetherill. The officers are: President, George B. Roberts; First Vice-President, J. N. McCullough; Second Vice-President, Wm. Thaw; Third Vice-President and Comptroller, Thomas D. Messler; S. B. Liggett, Secretary; Wm. H. Barnes, Treasurer.

*St. Louis, Alton & Terre Haute*.—At the annual meeting in St. Louis, June 5, the following directors (one-third of the board) were re-elected for three years: W. K. Murphy, Pinckneyville, Ill.; Eli Wiley, Charleston, Ill.; George W. Wall, Duquoin, Ill.; George W. Parker, St. Louis.

*St. Louis & Cairo*.—At the annual meeting last week, the following directors were chosen: F. Bross, Cairo, Ill.; John B. Lovington, East St. Louis, Ill.; E. H. Fishburn, L. M. Johnson, S. Corning Judd, H. B. Whitehouse, F. Whitehouse, Chicago; C. W. Schaap, Cincinnati; J. A. Horsey, New York. The board elected W. F. Whitehouse President; L. M. Johnson, Vice-President; Wm. Ritchie, Secretary; C. W. Schaap, Treasurer; Charles Hamilton, General Superintendent; S. Corning Judd, General Solicitor; Lewis Enos, Auditor.

*Savannah & Pacific Short Line*.—The directors of this new company are: F. E. Burke, Americus, Ga.; Alexander L. Chew, Joseph S. Lewis, Phineas Prouty, W. W. Wright, Geneva, N. Y.

*Southeastern, of Canada*.—Mr. P. A. McKinnon, Assistant Manager, is appointed Superintendent and Traffic Manager also, in place of H. A. Alden, resigned.

*Swedesboro*.—At the annual meeting in Swedesboro, N. J., recently, the following were chosen: President, Samuel Black; directors, Richard Ashhurst, John H. Bradley, Henry C. Clark, D. B. Gill, Mathew Gill, Wm. Knight, Edwin Stokes, I. H. Vanneman; Secretary and Treasurer, D. B. Gill. The road is leased to the West Jersey Company.

*Toledo, Texas & Rio Grande*.—The directors of this new company are: O. B. Ficklin, Charleston, Ill.; William Lindsey, Martinsville, Ill.; Robert Hanna, Fairfield, Ill.; J. C. Allen, Olney, Ill.; F. A. Vongassy, Effingham, Ill.; John H. Hall, John Mason, Newton, Ill.; Jay G. Rupert, Decatur, Ill.; E. Pratt Buell, Warsaw, Ill.

*Vermont & Massachusetts*.—At the annual meeting in Boston, June 8, the following directors were chosen: Edward I. Davis, Daniel S. Richardson, James A. Dupee, George F. Fay, Francis Goodhue, Wm. H. Hill, Thornton K. Ware. The road is leased to the Fitchburg Company.

*Western, of Minnesota*.—This company has elected George L. Becker President; F. R. Delano, Vice-President; E. T. Williams, Secretary, Treasurer and Land Commissioner. The road is worked by the Northern Pacific.

*Weston & Centerville*.—This company has been organized at Weston, W. Va., with the following officers: President, J. M. Bennett; Vice-President, Isaac Jackson; Secretary and Treasurer, M. W. Harrison.

*Wisconsin Central*.—Mr. A. A. Allen is appointed Superintendent of the Milwaukee and Eastern divisions in place of Mr. Charles F. Dutton, appointed General Superintendent of the Milwaukee & Northern. Mr. Allen was recently Master of Transportation of the Peoria & Iowa Division of the Wabash road.



**Wisconsin & Michigan.**—At the annual meeting in Milwaukee, June 8, the following directors were chosen: E. Mariner, Guido Pfister, Angus Smith, J. C. Spencer, H. Vogel, Milwaukee, Wis.; Jesse Hoyt, New York. The board elected Jesse Hoyt President; J. C. Spencer, Vice-President; E. Mariner, Secretary and Treasurer.

### PERSONAL.

—Mr. H. A. Alden has resigned his position as Superintendent and Traffic Manager of the Southeastern Railway, of Canada.

—Mr. J. H. Page, Assistant General Passenger Agent of the Chicago, Milwaukee & St. Paul road, has resigned and will engage in other business.

—The Maine Republicans have nominated for Governor of that state Mr. Frederic Robie, of Gorham, who is a director of the Portland & Rochester and is interested in other local roads.

—Mr. H. G. H. Reed, General Superintendent of the Milwaukee, Lake Shore & Western road, has lately secured a patent on an automatic coupler for freight cars, which can be worked by a brakeman from the top of a car.

—Mr. T. B. Clarke, General Traffic Manager of the Chicago, St. Paul, Minneapolis & Omaha road, has resigned to accept the position of Vice-President of the Northwestern Car & Manufacturing Company at St. Paul.

—Mr. Samuel H. Adams, a well-known builder and contractor, died in Baltimore, June 11, aged 55 years. He had built shops and round-houses for the Pennsylvania, the Baltimore & Ohio, the Northern Central and other roads. He was a director of the Western Maryland Company.

—Mr. Lucius Robinson died at Newport, Vt., June 8, aged 59 years. He was a successful banker and for many years a prominent citizen of Northern Vermont. He was largely interested in local railroads, and was a director of the Connecticut & Passumpsic Rivers Company and Vice-President of the Southeastern, of Canada.

—Dr. Erastus W. Smith, a well-known marine engineer, died at his residence in New York, June 12, after a long illness. He had been engaged as chief or consulting engineer with many steamship lines, and also with some bridge constructions. At the time of his death he was Chief Engineer of the Providence & Stonington Steamboat Company, and a trustee of the East River Bridge.

—Mr. Seth C. Baldwin, who died recently in Cleveland, O., aged 55 years, was at the time of his death Manager of the McComber Iron Company, and was largely interested in other Lake Superior iron properties. He was formerly largely interested in railroads, and had served at different times as Superintendent of Construction of the Chicago & Milwaukee, and Superintendent of the Peninsula road (both now parts of the Chicago & Northwestern), Vice-President and Manager of the Cleveland & Marietta, and Managing Director of the Valley Railroad, of Ohio. When he had charge of the Peninsula road it was rebuilt and extended, becoming a profitable property.

### TRAFFIC AND EARNINGS.

#### Southwestern Railway Association.

Commissioner Midgley has issued the following circular regarding business from Middle and Western states to Missouri River points:

"Commencing June 11, on business covered by the Southwestern Railway Association and the Colorado Traffic Association, carried via Chicago or points common thereto, originating at Buffalo, Suspension Bridge, Black Rock, Dunkirk, Erie, Salamanca, Pittsburgh, Wheeling or Parkersburg, and common points west thereof as far, but not including Detroit, Mich., and Toledo and Defiance, O., the Middle and Western states classification may govern as far as the Mississippi River.

"This does not apply to business from points north and east of LaFayette, Ind., and west of and including Toledo and Detroit, but may apply to business from all other common points east of the state of Illinois and west of the trunk-line terminal destined as above.

"For this purpose the Southwestern Railway Association may be understood to include: All freight traffic destined to or through St. Joseph or Kansas City, Mo., and Atchison or Leavenworth, Kan., excepting as follows:

"To points in Colorado or on the Denver & Rio Grande Railway; to points on the Southern Pacific Railroad; to points on the main line of the Union Pacific Railway or west thereof.

"The Colorado Traffic Association embraces all the freight traffic destined to any point in the state of Colorado or on the Denver & Rio Grande Railway carried via Council Bluffs, Plattsmouth, Atchison, Leavenworth, Kansas City or south thereof.

"The lines on which the said traffic originates are at liberty to quote from common points in the territory above described to any point on the Mississippi River, from Clinton, Ia., to Louisiana, Mo., inclusive, the rates which may be current from time to time from such common points to the Mississippi River, subject to the local rates of the associations above named from the Mississippi River to the Missouri River; and the roads leading westward from Chicago will each accept and alike require as their proportion of the current rates from such common points to the Mississippi River a division based on 207 miles for the distance between Chicago and the several Mississippi points.

"The arbitrators from either bank of the Mississippi River to the Missouri River are:

"First-class, 65c. per 100 lb.; second, 50c.; third, 35c.; fourth, 25c.; special, 20c.; A, 25c.; B, 20c.; C, 15c.; salt, cement or plaster, 11c.; coke or coal, 15c.; lime, staves or heading, 15c.; coal-oil per barrel, 55c.; railroad and pig-iron per gross ton, \$3. Governed by the revised westward classification.

"As soon as the distances and per cents. of the lines east of Chicago are determined, notice of the percentages which shall govern east and west of Chicago, respectively, from the several common points east of the Mississippi River will be issued; and the percentages thus issued will supersede and cancel all existing or prior arrangements in conflict therewith.

"Until such percentages are issued lines east are at liberty to base the division on the shortest recognized mileage from the said common points to Chicago, allowing 207 miles for the distance thence to the Mississippi River. The divisions should be noted on the way-bills by the line on which the traffic originates, showing the proportions accruing to the lines east and west of Chicago respectively. The lines west of Chicago will then add their proportions to the arbitrators west of the Mississippi River, and way-bill from Chicago to the Missouri River at the through rate thus ascertained."

#### Summer Rates to Colorado.

From July 25 to Sept. 25 the Union Pacific, the Atchison, Topeka & Santa Fe, and the Chicago, Burlington & Quincy

will sell round-trip tickets from the Missouri River to Denver, Colorado Springs or Pueblo for \$30. Tickets will be good to return until Oct. 31. The present round-trip rate is \$38. The round-trip rates from Chicago to the above-named points will be \$42. The principal reason for making this reduction is to give people an opportunity to visit the Exposition at Denver.

### Railroad Earnings.

Earnings for various periods are reported as follows:

Five months ending May 31:	1882.	1881.	Inc. or Dec.	P. c.
Burr, Cedar Rap. & No.	\$1,080,142	\$791,120	I.	36.5
Central Iowa	445,542	300,538	I.	48.2
Central Pacific	9,932,144	8,730,543	I.	14.0
Chi. & Alton	2,807,625	2,610,098	I.	7.6
Chi., Mil. & St. P.	7,520,000	5,388,990	I.	39.5
Chi., Ind. & St. L.	1,016,923	919,780	I.	10.6
Clev., Ak. & Col.	192,290	107,833	I.	14.6
Col. Hy. Val. & Tol.	1,049,290	834,371	I.	25.8
Det., Lan. & No.	636,588	499,231	I.	27.5
Green Bay, W. & Hannibal	149,229	139,313	I.	7.2
Ill. Cen. Ill. lines	2,482,520	2,436,095	I.	10.1
Ind. Cen. Ill. lines	782,489	613,236	I.	24.3
Ind., Bloom. & W.	966,302	946,802	I.	2.1
Lake Erie & West.	526,611	497,593	I.	5.8
Mil., L. Sh. & W.	337,975	191,736	I.	76.2
Mo. Pacific lines:				
Central Branch	328,782	362,877	D.	9.9
Int. & Gr. No.	1,105,044	971,759	I.	13.7
Mo., Kan. & Tex.	2,192,431	1,888,617	I.	16.2
No. Pacific	2,679,891	2,425,226	I.	10.5
St. L., I. M. & So.	2,701,603	2,861,127	D.	5.6
Texas & Pacific	1,678,112	1,447,141	I.	16.0
N. Y. & N. Eng.	1,240,611	1,009,483	I.	22.9
Ore. Ry. & Nav.	1,844,600	1,391,293	I.	32.6
St. L. & T.	808,770	579,295	I.	39.6
Main Line	489,369	591,249	D.	17.8
Belleville Line	328,274	318,249	I.	3.2
Scioto Valley	192,279	125,869	I.	52.7
Tol., Cin. & St. L.	368,499	230,033	I.	60.2
Union Pacific	10,016,000	8,371,000	I.	30.2
Wisconsin Cen.	653,025	462,795	I.	41.1

To end of third week in May:

Gal., Har. & San Antonio	\$476,547	\$458,746	I.	\$17,801	3.9
Four months ending April 30:					
Burr, Cedar Rap. & No.	\$880,864	\$625,490	I.	\$255,374	40.8
Central Iowa	370,844	262,781	I.	108,063	29.1
Central Pacific	2,353,000	2,061,411	I.	291,589	12.5
Chi. & Alton	907,644	802,753	I.	104,891	11.6
Chi. & Gr. Trunk	191,524	163,931	I.	27,593	16.8
Chi., Bur. & Q.	6,213,190	5,315,289	I.	897,901	16.4
Chi., Mil. & St. P.	2,736,192	2,283,227	I.	452,965	19.3
Des Moines & Ft. Dodge	125,859	98,605	I.	27,254	27.7
Net earnings	51,169	18,863	I.	32,306	170.9
Louis. & Nashv.	3,943,676	3,420,006	I.	523,670	15.3
Net earnings	1,584,496	1,130,615	I.	453,881	40.1
Utah Central	460,881	.....	.....	.....	.....
Net earnings	292,311	.....	.....	.....	.....

Month of April:

Grand Trunk	\$183,222	\$190,288	D.	\$7,066	3.2
Net earnings	52,758	64,347	D.	11,589	18.4
Great Western	74,446	88,952	D.	14,506	16.3
Net earnings	17,610	29,055	D.	11,445	39.5
Month of May:					
Burr, Cedar Rap. & No.	\$199,278	\$105,630	I.	\$93,648	20.3
Central Iowa	84,417	74,067	I.	10,350	14.0
Central Pacific	2,353,000	2,061,411	I.	291,589	12.5
Chi. & Alton	907,644	802,753	I.	104,891	11.6
Chi. & Gr. Trunk	191,524	163,931	I.	27,593	16.8
Chi., Mil. & St. P.	1,629,000	1,338,491	I.	290,509	17.9
Cin., Ind. & St. L.	199,110	191,096	I.	8,014	4.2
Clev., Ak. & Col.	43,255	34,992	I.	8,263	23.6
Det., Lan. & No.	134,576	116,004	I.	18,572	16.0
East Tenn. Va. & Ga.	231,146	208,075	I.	23,071	11.1
Ev. & Terre Haute	63,371	55,748	I.	7,623	13.6
Green Bay, W. & Hannibal	30,289	37,117	D.	6,828	15.8
Ill. Cen. Ill. lines	154,917	172,950	D.	18,033	10.3
Iowa lines	534,983	527,266	I.	7,717	1.4
Ind., Bloom. & W.	139,796	145,993	D.	6,227	4.3
Ind. Western	182,554	200,094	D.	17,540	8.8
Lake Erie & West.	94,484	102,605	D.	8,121	7.8
Little Rock & Ft. Smith	30,200	32,700	D.	2,500	7.7
Mil., Lake Sh. & W.	63,938	44,556	I.	19,382	43.1
Mo. Pacific lines:					
Central Branch	37,902	82,605	D.	44,703	29.8
Int. & Gr. No.	235,830	170,319	I.	65,511	38.5
Mo., Kan. & Tex.	489,334	393,745	I.	95,589	22.0
Mo. Pacific	560,907	589,476	D.	28,569	4.9
St. L., I. M. & So.	139,120	479,075	I.	340,955	24.5
Texas & Pacific	409,228	281,783	I.	127,445	45.3
N. Y. & N. Eng.	280,744	217,186	I.	63,558	29.0
Ohio Southern	30,831	24,824	I.	6,007	24.0
Oregon Ry. & Nav.	381,300	403,780	D.	22,480	5.5
Net earnings	165,460	204,285	D.	38,825	19.0
St. L., A. & T. H.	93,992	121,937	D.	27,945	29.9
Main Line	88,850	18,610	I.	70,240	37.3
Belleville Line	43,343	26,909	I.	16,434	60.6
Scioto Valley	76,021	48,368	I.	27,653	57.5
Tol., Cin. & St. L.	2,491,590	2,319,238	I.	172,352	7.4
Union Pacific	126,357	110,335	I.	16,022	14.6

Third week in May:

Gal., Har. & San Antonio	\$30,805	\$30,854	I.	\$49	0.2
First week in June:					
Col., H. V. & Tol.	\$48,807	\$45,443	I.	\$3,364	7.5
Cin. & East. Ill.	36,484	39,230	D.	2,746	0.8
Denver & R. G.	135,842	113,310	I.	22,532	16.5
Mo. Pacific lines	496,102	469,046	I.	27,056	5.7
No. Pacific	155,600	96,140	I.	59,460	61.9
St. L. & San Fran.	53,800	63,500	D.	9,700	15.3
St. P., Min. & Man.	201,600	80,800	I.	120,800	124.5
Wabash, St. L. & P.	288,801	290,721	D.	1,920	0.7

For a number of the figures given above we are indebted to the Commercial and Financial Chronicle's tables.

### Grain Movement.

For the week ending June 3 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past six years:

Year.	Northwestern receipts.	Total.	By rail.	P. c. of total.	Atlantic receipts.
1877	2,215,000	2,783,325	624,387	22.4	3,294,502
1878	3,591,073	4,542,030	1,169,514	24.8	5,698,007
1879	6,524,578	6,781,520	3,008,169	44.4	7,042,545
1880	8,184,203	7,289,142	2,280,142	23.2	6,790,016
1881	8,085,234	4,936,720	1,538,657	31.2	6,719,365
1882	3,843,742	4,947,824	1,083,683	42.9	2,522,670

The receipts of the Northwestern markets were thus not half so great this year as in the corresponding weeks of 1881 and 1880, and were 40 per cent less than in 1879.

They were also 582,000 bushels (13 per cent) less than the previous week this year; but with that exception they were the largest for five weeks.

The shipments of these markets are smaller than in any corresponding week for at least nine years, but they are 11½ per cent more than the week before and one-half more than two weeks before. Though the rail shipments were not large they were an unusually large proportion of the whole. Last year at this time there was considerable demoralization in the rates, and in 1879, when the rail shipments were enormous, the rates were the lowest that up to that time had ever been known. This year 104,218 bushels (4.1 per cent of the whole) went down the Mississippi; last year, 607,460 bushels (12.3 per cent of the whole). The falling off in the lake shipments, compared with last year, is 1,445,600 bushels; in the rail shipments, 445,000 bushels.

The receipts at the Atlantic ports for the week were 4,200,000 bushels (63 per cent) less than in 1881 and 1880, and were smaller than in any corresponding week since 1873 at least, but were about equal to the average since canal receipts began, and much greater than before this year. (The receipts the previous week were reported 500,000 bushels less than they actually were.)

Of the Northwestern receipts in the week ending June 3 this year, Chicago had 58.7 per cent, St. Louis 12.7, Toledo 9.5, Peoria 8.2, Milwaukee 6.6, Detroit 3.1, Duluth 0.9 and Cleveland 0.3 per cent.

Of the Atlantic receipts for the week, New York had 76.4 per cent, Montreal 7.4, Philadelphia 5.7, Baltimore 4.7, New Orleans 3.2, Boston 2.9 and Portland 0.4 per cent. The total receipts not being very different from those of several weeks previous, there is a great increase at New York, whose receipts are the largest since last November, though very small compared with receipts at this season in previous years. The Boston receipts were the smallest that have ever been reported there; the Montreal but one third of its unusually large receipts the week before; the changes elsewhere unimportant. The exports of these ports for the week were 919,087 bushels; 42.4 per cent, was from New York and the unusual proportion of 38.8 per cent from Montreal.

For the week ending June 7 the exports were 1,039,273 bushels of grain and 50,837 barrels of flour, against 4,531,310 bushels of grain and 89,679 barrels of flour in the corresponding week of last year.

For the week ending June 10 receipts and shipments at Chicago and Milwaukee were:

	Receipts		Shipments	
	1882.	1881.	1882.	1881.
Chicago.....	1,763,682	4,133,820	2,516,658	3,761,002
Milwaukee.....	226,740	636,384	157,681	394,526
Both.....	1,990,422	4,770,213	2,674,339	4,155,528

There is a decrease of 58 per cent in receipts and of 35½ per cent in shipments.

For the same week ending June 10 receipts and shipments at Buffalo were:

	Receipts.		Shipments.	
	1882.	1881.	1882.	1881.
By rail.....	287,600	467,000	535,000	1,168,000
By water.....	1,166,000	1,896,500	664,400	2,016,400
Total	1,453,600	2,363,500	1,200,000	3,184,400

There is a decrease of about 40 per cent in the rail and of 38½ per cent in the lake receipts, and of 54 per cent in the rail and 67 per cent in the canal shipments. In neither year was the rail movement large.

For the week ending June 10 receipts at four Eastern ports for three years have been:

Bushels:	New York.	Boston.	Phila.	Baltimore.	Total.
1882	1,627,626	121,650	106,250	118,056	2,033,582
1881	2,993,214	597,400	680,200	815,942	5,086,756
1880	3,555,445	421,925	1,463,900	651,475	6,091,745

P. c. of total:

1882	80.0	6.0	8.2	5.8	100.0
1881	58.8	11.8	13.4	16.0	100.0
1880	58.4	6.9	24.0	10.7	100.0

Again, the receipts of Boston, which earlier in this year were an unusually large proportion of the whole, are very small, though twice as large as the week before. Philadelphia and Baltimore together had only 14 per cent of the whole this year, against 20.4 last year and 34.7 in 1880.

San Francisco wheat exports for the eleven months of the California crop year from July 1 to May 31 were as follows, flour in barrels and wheat in



Of the total this year, 513,315 tons were from the Lehigh Region and 140,709 tons from the Wyoming Region.  
Actual tonnage passing over the Pennsylvania & New York road for the six months of its fiscal year from Dec. 1 to June 3 was:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite.....	486,536	449,236	I. 37,299	8.3
Bituminous.....	202,628	218,893	D. 16,265	7.4
Total.....	689,164	668,129	I. 21,035	3.1

Most of the anthracite coal is received from the Lehigh Valley road.

Semi-bituminous tonnages for the five months are reported as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Cumberland.....	497,850	731,739	D. 233,889	32.0
Huntingdon & Bd. Top.....	110,541	97,744	I. 12,797	13.1
East Broad Top.....	39,582	28,612	I. 10,970	38.4
Tyrone & Clearfield.....	1,218,265	938,955	I. 279,310	29.1
Bellefonte & Snow Shoe.....	88,250	38,735	I. 49,515	127.9
Total semi-bituminous.....	1,954,488	1,835,785	I. 118,703	6.5

The threatened strike in the Clearfield Region has passed over, and the miners continue at work. In the Cumberland Region the situation is practically unchanged, the number of foreign miners brought in having been too small to have much effect on the production.

Actual tonnage passing over the Huntingdon & Broad Top road for the five months was:

	1882.	1881.	Inc. or Dec.	P. c.
Broad Top coal.....	110,541	97,744	I. 12,797	13.1
Cumberland coal.....	85,330	91,261	D. 5,931	6.5
Total.....	195,871	189,005	I. 6,866	3.6

The Broad Top coal is mined on the line; the Cumberland is carried through, for the Pennsylvania Railroad, from Mt. Dallas to Huntingdon.

Shipments of Cumberland coal away from the region for the five months, were:

	1882.	1881.	Inc. or Dec.	P. c.
Balt. & Ohio.....	414,517	522,423	D. 107,906	20.7
Bedford Div., Pa. R.R.....	74,842	67,083	I. 7,759	10.9
Ches. & Ohio Canal.....	4,658	105,557	D. 100,899	95.5
Total.....	494,017	695,066	D. 201,049	28.9

Of the shipments for the year from the mines 48,275 tons have been over the George's Creek & Cumberland road, against 2,792 tons last year. The first shipments over this road were made in May of last year.

Bituminous tonnages reported for the five months are as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Barclay R. R. & Coal Co.....	106,681	174,782	D. 68,101	4.6
Alleghany Region, Pa. R. R.....	216,365	112,442	I. 103,923	92.4
Penn. and Westmoreland.....	533,812	339,904	I. 193,908	57.0
West Penn. R. R.....	133,558	134,064	I. 506	14.5
Southwest Penn. R. R.....	27,388	12,997	I. 14,391	110.7
Pittsburgh Region, Pa. R. R.....	307,122	262,873	I. 44,249	16.8
Total bituminous.....	1,404,926	1,037,062	I. 367,864	35.5

Bituminous shipments show a very considerable gain, the Barclay Co. having the only decrease reported.

Coke tonnages for the five months are given as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Bellefonte & Snow Shoe.....	10,426	3,202	I. 7,224	225.7
Alleghany Region, Pa. R. R.....	47,402	41,440	I. 5,962	14.4
Penn. and Westmoreland.....	114,080	81,505	I. 32,575	39.9
West Penn. R. R.....	54,080	48,359	I. 5,721	11.9
Southwest Penn. R. R.....	784,241	603,502	I. 180,739	29.9
Pittsburgh Region, Pa. R. R.....	298,846	263,019	I. 35,827	12.3
Total coke.....	1,309,075	1,044,027	I. 265,048	25.4

The coke tonnages given are all over the Pennsylvania Railroad and its branches. Both coke and bituminous coal shipments are very likely to be affected by the strike in the iron trade, if it continues longer.

The coal tonnage of the Pennsylvania Railroad Division of the Pennsylvania Railroad, for the five months, was:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite.....	604,027	532,540	I. 71,487	13.4
Semi-bituminous.....	1,510,323	1,136,486	I. 373,837	32.9
Bituminous.....	1,238,303	862,280	I. 376,023	43.6
Coke.....	1,309,075	1,044,027	I. 265,048	25.4
Total.....	4,661,728	3,575,342	I. 1,086,386	30.4

The tonnage for January was 810,571; February, 823,788; March, 1,114,894; April, 844,630; May, 1,067,845; total for the five months, 4,661,728 tons, a large increase.

In the month of May the Kansas City, Ft. Scott & Gulf road carried 22,499 tons of coal, and 43 tons of coke, a total of 22,542 tons.

San Francisco coal receipts in May were 60,500 tons, of which 44,200 were Pacific coast coal. Total receipts to May 31 were 352,000 tons.

#### Canal Traffic.

The business of the New York state canals for the week ending June 7 is reported as follows by the Canal Auditor:

	1882.	1881.	Decrease.	P. c.
Tons shipped.....	154,402	206,421	52,019	25.2
Miles cleared by boats.....	198,593	202,189	3,596	32.0
Tolls.....	\$19,180	\$28,972	\$9,792	34.0

The leading articles shipped were:

	1882.	1881.	Inc. or Dec.	P. c.
Lumber.....	61,441	60,981	I. 460	0.8
Grain.....	23,702	53,438	D. 29,736	56.0
Iron and iron ore.....	15,368	22,701	D. 7,333	32.3
Salt.....	2,311	2,969	D. 658	22.1
Stone, lime and clay.....	10,618	10,214	I. 404	6.0
Domestic woollens and cottons.....	112	869	D. 756	87.0
Sugar and molasses.....	336	1,639	D. 1,303	80.0
Total.....	113,908	152,810	D. 38,902	25.5

These include the leading articles of canal freight. As the railroads now do not compete any more strongly for east-bound freight this year than last, the great falling off in grain must be attributed to the smaller exports. In the other articles here mentioned, except lumber, much may be due to the very low west-bound rail rates, which will prevail till July 1.

#### Red Line.

Mr. S. D. Caldwell, General Manager of the Red Line Co., issues the following circular: "This line will assume charge of the east-bound foreign traffic July 1 next. The details of the business will be conducted as heretofore, while under the management of the Merchants' Dispatch Transportation Co. Mr. W. H. McIlhenny, General Agent for Foreign Freight, No. 30 Broadway, New York, will supply ocean rates and other information in connection with this business, for which application must be made direct. For

business via East Boston, apply to J. E. Woods, Foreign Agent, No. 53 State street, Boston."

#### Storage of Baggage in Chicago.

The following circular, just issued, explains itself: "Owing to the overcrowded condition of our baggage-rooms, rendering it difficult to transact business therein, and as an inducement to passengers to promptly remove baggage therefrom, the following roads, centering in Chicago, hereby give notice that storage will be charged on all baggage remaining unclaimed in their baggage-rooms more than 24 hours."

This circular is signed as follows: Baltimore & Ohio, J. Van Smith, General Baggage Agent; Chicago & Alton, C. Huntington, General Baggage Agent; Chicago & North-western, N. A. Phillips, General Baggage Agent; Chicago, Milwaukee & St. Paul, D. M. Christie, General Baggage Agent; Chicago, Rock Island & Pacific, J. D. Marston, General Baggage Agent; Chicago, Burlington & Quincy, M. B. Starring, Assistant General Baggage Agent; Illinois Central, H. A. Winter, General Baggage Agent; Lake Shore & Michigan Southern, Jno. L. Freeman, General Baggage Agent; Louisville, New Albany & Chicago, J. B. Browning, General Baggage Agent; Michigan Central, H. P. Dearing, General Baggage Agent; Pittsburgh, Ft. Wayne & Chicago, Pittsburgh, Cincinnati & St. Louis, R. Bentley, General Baggage Agent; Wabash, St. Louis & Pacific, Geo. P. Maule, General Baggage Agent.

#### Western Railway Weighing Association.

This Association during the month of May weighed 45,549 cars of freight against 42,260 cars in April, an increase of 3,289 cars.

#### Equalizing Terminal Charges.

Representatives of the trunk line were in conference June 14 at Commissioner Fink's office on the question of equalizing the terminal charges at the different Atlantic seaboard ports. At present, the New York roads make no charge for elevating grain at their elevators, while the elevator charges to shippers in Baltimore and Philadelphia are about 1½ cents per bushel. The New York roads often also allow the shippers for lighterage in the harbor, it is said, as a method of undercutting the tariff rates. The storage capacity of Baltimore is comparatively small, and frequently in times of pressure of arrivals the storage rates are advanced to exorbitant figures. It is now proposed to include the terminal charges at the several seaboard cities in the rail rate, making grain deliverable alongside the vessel. No definite plan has yet been agreed upon for carrying out this proposition.

#### Passenger Rates to California.

A meeting was held in Chicago, June 10, for the purpose of equalizing rates from Chicago to San Francisco by way of Kansas City and Omaha, in which a difference has been made by the low rates prevailing between Chicago and Kansas City. No action was taken, on account of the absence of the Chicago & Alton.

#### Transfer of Freight in Car-Lots at Missouri River Points.

Commissioner J. W. Midgley, of the Southwestern Railway Association, has just promulgated the following rules governing the transfer of freight in car-lots at Missouri River points:

"It has been agreed by the roads in the above-named Association that the rule which shall govern in the transfer of all freight in car-lots at Kansas City, Leavenworth, Atchison and St. Joseph shall be as follows:

"The delivering road shall place its cars in the yard of the receiving road. The receiving road shall transfer the freight, at its own expense, and shall then return the cars, empty, to the yard of the delivering road. The foregoing shall apply to cars in 'bad order' or otherwise. The receiving road shall not, in any event, run the cars of the delivering road beyond the yard or transfer-track of the receiving roads, unless the consent of the delivering road to such further use shall first have been obtained. These regulations shall apply to freight in car-lots, east or west bound, and will take effect from June 5, 1882."

#### Rules for Shipping High Explosives.

Mr. H. H. Courtright, General Freight Agent of the Chicago & Alton, has issued the following circular regarding the transportation of explosives:

"This company will receive for shipment the high explosives, as Atlas, Hercules, Giant and Dittmar powder in car-lots only when shipped under the following conditions:

"First—Shipment to be up in strong boxes not too large to be readily handled by one person; second, each package to be plainly marked 'explosive,' 'dangerous,' third, it is understood that these nitrate preparations are thoroughly absorbed in charcoal, saw-dust, magnesia, wood fibre or other similar substance, and that no natural heat will cause them to liquefy. Should any packages show outward signs of oily stain or other indications that absorption is not perfect they will be refused in every instance; fourth, any and all nitrates or other explosive preparations not in accordance with above specifications (excepting ordinary black powder) will in no case be received for shipment by this company; fifth, these articles, which include 'mining cartridges,' as well as every other form of explosive (not excluded from shipment) except common black powder, will be rated at one and a half first-class rate, in car-lots only, to all points; sixth, in no case must the cap used for exploding these powders be loaded in the same car with the explosives, and under no circumstances will cars be received if so loaded; seventh, shipments of these articles in less than car-lots will in no case be received; neither will they be allowed to be mixed with other freight. Our laws provide heavy penalties both to shippers and common carriers for a violation of these rules, and it is hoped that the common welfare of the people, if not this circular, will induce shippers and common carriers alike to know that such shipments are put up, marked and forwarded only under their proper names and in accordance with these provisions. Shipments of common black powder may be shipped in any quantity if packed in good, substantial magazines or put up in iron kegs."

#### Lumber and Salt Rates to Missouri River Points.

Commissioner J. W. Midgley, of the Southwestern Railway Association gives notice that, taking effect June 10, the railroads in this Association will charge the following rates on business destined to Kansas City, St. Joseph, Atchison, or Leavenworth, on lumber in car-lots of 24,000 lbs. or over, and on salt in barrels, in cents per 100 lbs.:

	Lumber.	Salt.
Detroit or Toledo.....	28	21½
Chicago or Milwaukee.....	23	20
Moline, Rock Island and Davenport.....	18	11½
Muscatine, Burlington, Ft. Madison and Montrose.....	17	11½
Keokuk, Quincy and Hannibal.....	16	11½
Louisiana, Alton and East St. Louis.....	15	11½

The Chicago & Northwestern, which is not a member of this Association, has agreed that the rate on lumber from its Mississippi River points (Fulton, Ill., and Lyons, Clinton

and Comanche, Iowa), to the Missouri River at St. Joseph and points further south shall be 18½ cents per 100 lbs.

This is the outcome of the recent prolonged negotiations between the railroad companies and the lumber merchants of Chicago and the Mississippi River points.

The same rates on lumber are established by the Iowa Trunk Line Association to Council Bluffs.

#### Passenger Rates.

A dispatch from Chicago, June 13, says: "The seaboard trunk lines recently proposed to the Chicago lines that instead of ticketing at a net rate of \$25 from New York to Kansas City they would collect \$32.40 from passengers, prorate it through, and require the terminal line to refund \$7.40. The general agents of the Chicago railroads met today and passed a resolution to the effect that the seaboard lines should use the net rate, but, in case they should refuse, agreeing to a rebate order provided the total amount of rebate is allowed to the line refunding the same, and that all rebate orders be subject to a sight draft without notice."

#### Crop Prospects.

The June report of the Department of Agriculture says the area of cotton under cultivation in the whole country is 2.7 per cent. less than last year. An increase of 5 per cent. is reported in Texas, and of 7 per cent. in the very small acreage in Virginia, but a decrease in all other states, amounting to 6 per cent. in Louisiana and Arkansas, and to 5 per cent. in Georgia and Mississippi. There was, however, a little cotton yet to be planted this year on the 1st of June. The condition is reported as 89 per cent. of "a condition of perfect healthfulness and average growth," against 93 last year and 99 in 1880. The weather has been too cold for it to thrive perfectly. It should be remembered, however, that there is much time left for the making or marring of this crop. The best condition is 97 in Florida, 95 in Alabama, 93 in Texas, and 92 in South Carolina; the worst is 70 in Virginia, 80 in Tennessee, 82 in North Carolina and 85 in Arkansas.

The area sown to spring wheat is reported to have been, on the 1st of June, 12 per cent. less than last year, a decrease being reported everywhere except in some Northwestern Minnesota and Northern Dakota counties. In Southern Dakota there is a great decrease in wheat acreage; and this being the most thickly peopled part of the territory, this so far offsets the increase of 25 or 30 per cent. made in many of the new northern counties that the acreage of the whole is but 2 per cent. greater than last year, which is too insignificant an area to make any appreciable difference on the national crop. The greatest decreases in acreage are 18 per cent. in Iowa, 17 in Minnesota and 15 in Wisconsin. The only other state that has much spring wheat is Nebraska, which has 10 per cent. less than last year.

All this decrease in wheat acreage, it should be remembered, has been made up by an increase in other crops, and chiefly corn and oats.

The average condition of winter wheat in the whole country is reported as 100 June 1, against 76 last year. In Illinois the condition was 98 and in Ohio 99, but in all the other great winter-wheat states in the Mississippi Valley it was above 100. On the Pacific coast an average of only 77 is reported for California, of 98 for Oregon.

Taking winter and spring wheat together, the present condition would make an average yield of about 13 bushels an acre, which was just about the yield in each of the three harvests previous to last year. The total spring wheat acreage being comparatively small, the large decrease in it has not a great effect on the total; enough, perhaps, to reduce the production, with an average yield of 13 bushels per acre, 15,000,000; but leaving the acreage still much greater than in any year previous to 1880. With that yield we should have about 475,000,000 bushels this year, against 380,000,000 last year, 498,000,000 in 1880, 459,000,000 in 1879 and smaller amounts in all earlier years. The winter wheat is now nearly safe, except from bad harvest weather; the spring wheat is simply well started.

An average increase of 7 per cent. in the acreage of oats is reported, which amounts to 1,180,000 acres, against a decrease of about the same amount in the spring wheat acreages. The average condition June 1 was 101.

The acreage of corn could not be reported June 1, a very large part not being planted then. Preparations had been made to plant a much larger area than last year nearly everywhere. This intention was carried out in the South, but there was so much cold and wet weather in May that generally north of the latitude of Peoria much remained to be planted, and further south it was backward and unhealthy, and possibly the bad weather has prevented entirely the planting of some fields. The early-planted corn will for the most part never have a good stand, some plants being weak and some killed; with warm weather the rest of this month it will improve greatly and rapidly, however, while the late planted will have a chance to make a perfect stand. Hot, moist weather will be able to make a great corn crop yet—with the larger acreage probably a larger crop than has ever been grown before; but its backwardness at this time, unless the weather is unusually favorable for the next two months, makes the danger from an early frost greater.

The wet weather which has delayed corn-planting and growing has been very favorable to grass, which is as important as any crop, except perhaps, corn.

On the whole the prospect is more fair for crops as large as in 1879, probably not so large as in 1880, even with everything favorable hereafter, but immensely greater than last year. All the crops except winter wheat, however, are subject to many dangers yet.

The most remarkable feature in the report of the Agricultural Department is that it shows no increase in acreage of any important crops except oats, but a decrease in wheat and cotton. Apparently whatever increase there may be in the acreage under cultivation this year will be represented by that in the corn crop, not yet reported.

The Illinois Department of Agriculture reports that on the 1st of June in that state there were about 6,764,000 acres of corn planted, which was 499,000 acres, or 7 per cent., less than the acreage in 1881. This year, however, a great deal of corn remained to be planted on the 1st of June, and there is no doubt that the farmers intended to plant much more than last year, making up for the decrease in wheat acreage. In very wet places they have been prevented from planting entirely, but this probably is not a large area, and complete returns will probably show that there has been at least as much corn planted this year as last.

The condition of the corn is represented by the Department to have been 22 per cent. below an average in the northern third of the State, where was four-ninths of the acreage, 34 per cent. below in the central third, where was two-fifths of the acreage, and 12 per cent. below an average in the southern third, which has the other 14 per cent. of the acreage.

The condition is much worse than last year everywhere, except in the southern counties, but the injury to the crop last year was done later in the year by drought. Central Illinois is not likely to recover so as to have a full yield, but the rest of the state may.



### Passes.

The following circular, recently issued, is signed by representatives of the New York Central, the Pennsylvania, the Erie and the Baltimore & Ohio:

At a meeting of the Trunk Line Executive Committee, held at the office of the Commissioner, New York, the following resolutions were unanimously adopted:

"Whereas, The third section of the seventh article of the Trunk Line Agreement is as follows:

"No passes or tickets shall hereafter be given for the purpose of influencing the passenger or freight traffic over any line, party hereto, as against any other line, party hereto, and all tickets issued by the lines, parties hereto, or accepted from connecting roads of the lines, parties hereto, shall be reported at full tariff rates." In pursuance of the foregoing it is hereby

"Resolved, That no passes or reductions in the established passenger fares shall hereafter be granted by any officer of the companies represented by the signers hereto to any person on account of freight or passage; and officers of connecting roads holding our blank passes are requested to enforce this resolution and rule against all such applicants therefor.

"Resolved, That no applications for passes shall be granted on general letters, nor in behalf of persons connected with other transportation lines, unless specifically applied for by the proper general officer of such line, stating the name and official position of such applicant; and it is requested that all applications be limited to persons fully entitled to such passes."

### THE SCRAP HEAP.

#### Draw-bridges Versus Fast Trains.

The New Haven (Conn.) *Palladium* says: "The Legislature of this state, having in mind the terrible catastrophe that occurred at the South Norwalk draw-bridge 29 years ago, enacted stringent statutes long since compelling all trains to come to a full stop before reaching this class of bridges. In those days railway travel had not been brought to that state of perfection that now exists, and it would seem to be quite unnecessary to insist on fast express trains stopping when the track is properly guarded by vigilant watchmen. There are seven draw-bridges between New London and New York and one beyond New London. Here, then, are eight draw-bridges. It is estimated that it takes four minutes from the moment the steam is shut off and the brakes applied to the time the train is under full headway again. Thus it will be seen that if the trains were not compelled to halt at these draw-bridges 32 minutes more time could be saved between Boston and New York. It would seem that, with the greatly improved system of railway signals, such an accident as happened at Norwalk in 1853 would be impossible now. The most dangerous draw-bridge of any of the whole line is the one over the Harlem River, and the laws of New York state do not compel trains to stop there."

It is still an open question whether the slight gain in time would not be more than balanced by the increased risk, if the stops were omitted.

#### A Strange Accident.

The author of the following account of a strange railroad accident is not officially known, but it reads as if it had been written by Eli Perkins: "In a very mountainous Eastern state, in a very picturesque region, a line of railroad was in operation. It was built at one point upon the opposite sides of two mountains, with, of course, a valley between. A locomotive was stationed at the summit of each to pull up the trains. In one instance, when a long passenger train had reached within a short distance from the top, the heavy wire cable broke, and away it went, more rapidly than the imagination of the narrator, to the valley and up the other mountain, a half mile, like a flash, and the presence of mind of a passenger, a book agent by the by, arrested it from running down the other side, as he checked it by the brakes. Anyhow, back went the train to the bottom, and again ascended the other side, thus see-sawing for the greater part of the day before the power of gravity overcame the momentum. The ladies shrieked, but the speed was such that the train left the sound behind, and the prayers that were uttered on the crest of one mountain were met by the returning train in the valley."

#### Train Robbery.

A dispatch from Dallas, Texas, June 5, says: "About 3 o'clock this morning, when the north-bound Missouri Pacific passenger train from Laredo to St. Louis was passing through a deep cut one mile north of Denton, it was signaled by a lantern and stopped. A train robbery on this line had been anticipated for some time, and trains have heavily armed guards in them. When the train stopped four men wearing pasteboard masks sprang into the mail car with drawn pistols. They evidently mistook the mail car for the express car. They were confronted by the guard and attachés of the mail service with drawn pistols and leveled shotguns, and the battle immediately opened. The first shots were fired without effect, but the robbers turned tail and ran up over the embankment of the cut, pursued by the guards. One of the robbers was seen to fall, spring to his feet again, and make to the brush in the darkness. The guards and trainmen returned to the cars, and the train was backed down to Denton, where the alarm was given, and a posse of officers and citizens immediately organized and started in pursuit. The train then proceeded to St. Louis. To-day the dead body of one of the robbers was found a few hundred yards from the scene of the conflict, with his head and back riddled with buckshot. He was identified as S. P. Shelton, son of a respectable Johnson County farmer, living fifty miles from Denton. He was about 22 years old, and had been recently working on a farm near Denton. This evening another member of the gang surrendered to the police, and is now in jail. His name is James Carter, son of a farmer near Denton. He says the robbery was planned by the two robbers who are at large. They are strangers, who came to that section recently. Carter refuses to divulge their names. He says the four of them assembled at Denton about twenty minutes before the arrival of the train and determined to rob it. Carter had just been released from the Huntsville Penitentiary, where he served two years for theft. The robbers secured nothing from the train. They had piled up logs and other obstructions across the track a few miles in advance of where they signaled the train, so that if it did not stop it would be wrecked. The posse are still in pursuit of the two robbers at large and are confident of capturing them."

### OLD AND NEW ROADS.

**Allegheny Central.**—Track on the extension of this road is now completed to Swains, N. Y., on the Buffalo Division of the Erie. The new terminus is 18 miles north by east from the late terminus at Angelica, and 63 miles from Olean.

**Baltimore & Drum Point.**—An effort is being made to revive this project, and a new survey has been made from Baltimore to Annapolis. The proposed line is from Baltimore nearly due south about 20 miles to a junction with the Annapolis & Elkridge, which road it is intended to use to Annapolis. The southern extension will start at Camp Parole, near Annapolis, and run southward through Anne Arundel and Calvert counties to Drum Point on Chesapeake Bay at the mouth of the Patuxent. The length of the line from Baltimore to Drum Point is 81 miles. The country south of Annapolis has a very light traffic, and the road would have to compete everywhere with water transportation.

**Boston & Albany.**—During the month of May this company delivered to the New York Central road 10,875 cars, and received 9,942 cars from that road. Of the west-bound cars 9,672, or 88.9 per cent., were hauled through from Boston. Of the east-bound cars 7,216, or 72.6 per cent., were brought east of Worcester, the remainder being for stations or connecting roads west of Worcester.

**Boston and New York Air Line.**—Notice is given that all holders of New Haven, Middletown & Willimantic first-mortgage bonds must convert their bonds into preferred stock of this company by July 1 next, and that after that date no dividends will be paid except upon stock actually issued by the present company.

**Brush Mountain.**—This company has been organized to build a railroad from Christiansburg, Va., on the Norfolk & Western road, to the Brush Mountain coal-field in Montgomery County. The main line will be 13 miles long, and spurs and branches will be built as needed.

**Burlington, Cedar Rapids & Northern.**—Track-laying is now in progress on the extension of the Pacific Division from Emmetsburg, Ia., northwest to Spirit Lake. The distance is about 33 miles.

**Central of New Jersey.**—It is reported that a deal has been made between Robert Garrett, of the Baltimore & Ohio Railroad Company and Jay Gould, by the terms of which Mr. Gould takes a big block of Jersey Central stock from Mr. Garrett, and secures certain concessions from Garrett in shaping the policy of the Baltimore & Ohio Railroad. In return, it is said, Garrett obtains the support of Gould in furthering the long-cherished scheme of bringing the Baltimore & Ohio Railroad into a New York line. Gould has hitherto vigorously opposed this ambition of Garrett's, and has fought it in coalition with Vanderbilt.

It is said that the following names have been agreed on to be presented for directors at the coming election: Messrs. Little, Keon, Clark, Sheppard, Sloan, Garrett, Gowen, Randolph and Knight. Messrs. Little, Keon and Randolph are connected with the present management, and Mr. Sloan is friendly to the Gould party.

The report of the special master on the closing report of the late Receiver, Judge F. S. Lathrop, gives the following statements for the period from Feb. 1 to March 3, the date of Judge Lathrop's death:

Balance, Feb. 1.....	\$592,891.66
Receipts, passengers.....	173,284.36
Freight.....	490,384.72
Miscellaneous.....	127,729.16
Total.....	\$1,384,289.90
Disbursements.....	1,033,837.16
Cash balance, March 3.....	\$350,452.74

The disbursements included \$236,420.27 for interest; \$62,100 for rentals; \$55,200 for car trust payments, and \$16,944.45 for stocks bought.

**Charleston, Martinsville & Nashville.**—This company has been organized to build a road from Charleston, Coles County, Ill., by Martinsville to a point on the Wabash River near Vincennes, Ind. The distance is about 70 miles. It is apparently intended to be a branch of the Toledo, Cincinnati & St. Louis.

**Chester & Lenoir.**—This road is now completed to Malden, in Catawba County, N. C., 8 miles north of the old terminus at Lincolnton. At the annual meeting in Yorkville, S. C., last week, it was stated that the gross earnings for the year were \$48,865.60; increase in net earnings about \$2,200; total receipts from all sources \$108,008.50; total expenses, \$99,601.16; leaving a profit of \$6,407.34. Eight and one-fourth new miles were completed north of Lincolnton, at a cost of \$33,205. Gen. J. D. Imboden, representing Pennsylvania capitalists, was allowed to address the meeting, and submitted a proposition for the lease of that portion of the line from Newton to Lincolnton, subject to the ratification of the stockholders, the substance of which is as follows: The lessees shall complete the road from Hickory to Lenoir within four months from the ratification of the sale, and shall ask nothing from the people at all until the work is done, and they shall pay \$2,000 per annum to the company for the interest on that portion of the road. If they fail to complete the road in the time prescribed, the whole contract shall be forfeited. Furthermore they agree to complete the gap between Newton and Hickory within 12 months from the ratification of the sale. If the terms are complied with, a large force will be put to work at once between Hickory and Newton.

**Chicago, Burlington & Quincy.**—This company makes the following statements for April and the four months ending April 30:

	April.	Four months.
Earnings.....	\$1,530,838	\$6,213,190
Expenses.....	823,146	3,487,068
Net earnings.....	\$707,692	\$2,726,122

For April there was a decrease of \$43,533, or 2.8 per cent., in gross earnings, and an increase of \$8,634, or 1.2 per cent., in net earnings. For the four months there was an increase of \$877,901, or 16.4 per cent., in gross earnings, and an increase of \$442,895, or 19.3 per cent., in net earnings.

**Chicago, Milwaukee & St. Paul.**—In the suit of Wm. Barnes, Trustee, against this company, notice is given that all holders of La Crosse & Milwaukee third-mortgage sinking fund bonds, dated June 31, 1858, must file their claims with the clerk of the United States Circuit Court in Milwaukee, Wis., on or before July 1, or be barred from any relief from the Court.

The new Emmetsburg Branch is now completed and opened for business from Emmetsburg, Ia., on the Iowa & Dakota Division, north to Estherville, 23 miles.

**Chicago & Northwestern.**—The extension of the Winona & St. Peter line is now completed to Clark Centre, Dak., 31 miles west of Watertown, the old terminus, and 352½ miles from Winona.

On the branch from Volga, Dak., northward up the Sioux Valley to Watertown, track is now laid from Volga, 24 miles. The land on these extensions is being taken up very fast and a large number of settlers are coming in.

**Chicago, Rock Island & Pacific.**—This company is making arrangements to build a bridge over the Des Moines River about three miles east of Des Moines, Ia., and will connect its Winterset Branch with the main line at that point. This arrangement will save the expense of maintaining several miles of track on the branch, which is liable to trouble from wash-outs, and will obviate the present circuitous entrance into the city.

**Chicago & Western Indiana.**—The Chicago *Tribune* says: "This company is pushing its belt-line system through Hyde Park, and a force of several hundred men are making rapid headway. The docks of the company, just south of One Hundredth street, are progressing satisfactorily, and, when completed, will be 1,800 ft. in length. The southern branch of the belt-line system is about 15 miles in length, and is rapidly nearing Hammond, Ind. It will cross the Calumet River at that point on an iron bridge, to cost \$25,000. It will again cross the Calumet at Torrence avenue, about a quarter of a mile west of the wagon-bridge, known as Chittenden's bridge. From One Hundred and Twelfth street a branch will extend to Stony Island—the location of the new shops of the New York, Chicago & St. Louis Railroad—where it will intersect the main line, and will then join the main line at Englewood. The Wabash, Chicago & Eastern Illinois, Grand Trunk and Louisville, New Albany & Chicago railroads enter Chicago over the Western Indiana tracks, and the Chicago & Atlantic will do the same when in running order."

**Cincinnati, Indianapolis, St. Louis & Chicago.**—The board has resolved to issue \$1,000,000 new stock for the purpose of building a passenger station and grain elevator in Cincinnati, and of buying additional equipment. The new stock is offered to stockholders of record June 1 at 90, payable 15 per cent. down, the balance in five equal installments, Oct. 15, 1882, Jan. 15, April 15, July 15 and Oct. 15, 1883; deferred installments to bear 6 per cent. interest. The whole amount may be paid July 1, if preferred. Any stock not subscribed for by July 1 will be disposed of by the board to parties other than stockholders, or not, as may be deemed best. The new stock will be entitled to dividends from July 1.

**Cincinnati, Selma & Mobile.**—Track is reported laid on the extension of this road from Greensboro, Ala., northwest to the junction with the Alabama Great Southern, near Akron. The distance is 17 miles, making the road 71 miles long, from Selma to Akron.

**Connoton Valley.**—This company is calling for proposals for completing 50 miles of the Straitsville Division from Canton, O., southward. The grading and much of the masonry is finished for 35 miles from Canton.

**Denver & Rio Grande Western.**—This company, which is building the Utah end of the Denver & Rio Grande's Salt Lake Extension, has completed the road from Salt Lake, Utah, southward to Provo, 49 miles. From Provo eastward to Pleasant Valley, 60 miles, the company has just bought the Utah & Pleasant Valley road, as noted elsewhere. East of Pleasant Valley tracklaying is in progress, and the road is graded for nearly 100 miles.

**Des Moines & Ft. Dodge.**—On the extension of this road track is now laid from Tara Junction, Ia. (six miles west of Ft. Dodge), northward 20 miles. The grading is nearly done for 23 miles further, to the proposed junction with the Iowa & Dakota Division of the Chicago, Milwaukee & St. Paul. Beyond that point no work will be done this season.

**East Tennessee, Virginia & Georgia.**—Work is progressing steadily on the extension of the Ohio Division northward to the Kentucky line, where it is to meet the Louisville & Nashville's Knoxville Branch. Track is laid from the old terminus at Careyville, Tenn., north by west up Cove Creek to the Elk Gap Tunnel, a distance of 10 miles. Work is progressing on this tunnel, and also on several smaller ones beyond it. From Elk Gap the line runs north by east, following Elk Creek to the state line, the distance being about 20 miles, with heavy work nearly all the way.

**Ferro-carril Transandino.**—The distances between stations and elevations of the stations on a section of this new Chilean railroad, beginning with the station at Santa Rosa de los Andes, are, in metres:

	Distance.	Elevation.
	Metres.	Metres.
Santa Rosa de los Andes.....	24,540	1,724.40
Salto del Soldado.....	11,320	1,407.40
Rio Blanco.....	17,200	2,240.20
Juncal.....	53,000	32.0

This gives an average grade of 75 ft. per mile between Santa Rosa and Salto del Soldado, of 152 ft. per mile thence to Rio Blanco, and of 228 ft. per mile from Rio Blanco to Juncal.

The road then continues:

	Distances.	Altitude.
	Metres.	Metres.
Juncal to tunnel.....	35,100	3,530
Length of tunnel.....	3,250	3,530
Rio Cueros.....	12,750	3,124
Puente del Inca.....	19,000	2,649
Puente de los Vacos.....	15,000	2,309
Boca del Rio.....	112,000	755
Argentine border.....	37,000	2,477
Total.....	287,000	178.3

The rise from Juncal to the tunnel is at the rate of 194 ft. per mile; thence from the tunnel to Rio Cueros there is a fall of 168 ft. per mile; thence to Puente del Inca, 132 ft.; thence to Puente de los Vacos, 115 ft.; whence in 92½ miles there is a descent of 5,098 ft.—an average of 55 ft. per mile.

These figures were given during the construction of the road in 1877.

**Flint & Pere Marquette.**—This company has declared a semi-annual dividend of 3 per cent. on its preferred stock, which represents the former consolidated bonds, payable July 17. The income account for the four months ending April 30 shows a surplus over all expenses, taxes, and fixed charges of \$190,815, which with the balance remaining January 1, of \$19,123, makes a total of \$209,938 applicable to dividends. Of this the 3 per cent. declared will take \$195,000, leaving a surplus of \$14,938, with two months' earnings to be added.

**Forest City & Southern.**—Surveys are being made for this road from Forest City, Ia., south through Garner and Belmont to Berlin and thence southeast to Eldora, about 75 miles in all.

**Ft. Worth & Denver City.**—Track on this road is now laid for 28 miles northward from Decatur, Tex., and 73 miles from Ft. Worth. Regular trains are running over the road. The grading is done for 25 miles further, to Henrietta.

**Genesee Valley.**—The Rochester *Post-Express* says: "Work is progressing satisfactorily on the Genesee Valley



**Canal Railroad**, under the direction of the General Manager, Col. Ensign Bennett. The rails are laid from Hinsdale to near Belfast, 20 miles; from Nunda to Mt. Morris, 14 miles; from near Cuylersville to Rochester, 29 miles; branch from Nunda to Swains, 9 miles; making 72 miles in all, or three-quarters of the whole line. Much delay has been experienced in building the last pier of the Genesee River bridge, near Mt. Morris, owing to the continued high water. The material for the superstructure of this bridge is all delivered on the ground. Twenty-four miles of the line have been fully ballasted.

It is stated that no work will be done south of Hinsdale, but that the Buffalo, New York & Philadelphia track will be used from Hinsdale to Olean, seven miles.

**Griffin**—Surveys are being made for a railroad from Griffin, Ga., to the nearest point on the East Tennessee, Virginia & Georgia's new line from Macon to Atlanta. The distance is about 13 miles.

**Herkimer, Newport & Poland**—The round-house and station at Poland, N. Y., are being put up, and trains now run regularly through to that town, 18½ miles from the southern terminus at Herkimer.

**Houston, East & West Texas**—A connecting track has been laid through Houston, Tex., and a bridge built over Buffalo Bayou, making a connection between this road and the Texas Western.

**Lewiston & Ontario Bridge**—This company was incorporated by an act of the last New York Legislature to build a bridge over the Niagara River at or near Lewiston, N. Y. Commissioners appointed in accordance with the act have located the bridge, and will open books for subscription to the stock July 12 next.

**Lower California & Sonora**—The concession for this road in Mexico is held by Boston parties who are largely interested in the California Southern and the Atchison, Topeka & Santa Fe. The proposed route is thus described by a correspondent of the Boston *Advertiser*: "It begins at National City, three miles from San Diego in California, at the present terminus of the California Southern Railroad, and runs southeast through Northern Mexico 470 miles to Calabasas in Arizona, running only 12 miles in the United States at the west end, crossing Lower California, a territory of Mexico, the only one she has, to the mouth of the Colorado river; thence across northern Sonora, and leaving it near the eastern line it enters Arizona and runs 24 miles to Calabasas, where it connects with the Sonora Railroad from Guaymas, running northeast to a connection with the main line of the Atchison, Topeka & Santa Fe Railroad at or near Benson, and with an extension north, sooner or later, from Calabasas to the main line of the Atlantic & Pacific Railroad by the way of Prescott."

**Manhattan Elevated**—The New York *Tribune* of June 15 says: "The directors of the Metropolitan Elevated Railroad Company recently declared a quarterly dividend of 1½ per cent., payable on and after July 1, to stockholders of record on June 15. Three months before the dividend was declared only on the Manhattan preferred stock, into which the Metropolitan stock is convertible. A majority of the Metropolitan stock is held by persons opposed to the present management of the company and to the reduction of the guaranteed dividends from 10 to 6 per cent. The annual meeting of the stockholders of the company was postponed at the same time from the second Tuesday in July to the same day in November."

"Yesterday the Committee on Securities of the Stock Exchange ruled that the Metropolitan stock should be dealt in dividend on, and that no due bills for the dividend should be required until further notice. The preamble to the resolution adopted by the committee recites the declaration of the dividend and then continues: 'The acceptance of this dividend will be construed by the management of the company, according to the statement of its President, as an agreement by the stockholders to the reduction of the guaranteed dividends, under the lease by the Manhattan Railway Company, from 10 to 6 per cent.'"

"One of the committee said that the Stock Exchange knew nothing about any preferred stock, and that it would continue to deal in the Metropolitan stock as usual."

**Marietta & Cincinnati**—A meeting of Cincinnati & Baltimore stockholders was held in Cincinnati, June 6, at which representatives of the Reorganization Committee were present. A report was submitted on the plan of reorganization, after which there was some little discussion resulting in the appointment of a committee of six, three from each party, as follows: From the majority, W. T. McClintock, George Hoadley and J. L. Keck; from the minority, Harry Lewis, A. H. Hinkle and A. H. Bigbee—to confer in accordance with the resolutions which referred the report of the board of directors, with all the subjects covered by it, to the committee, with instructions to examine fully into the matter treated by the report, and to accord their assistance to officers of the company with a view to ascertain the earnings of and upon the Cincinnati & Baltimore Railway, and to obtain such further information as the committee may deem proper. The committee are also instructed to confer with the Marietta & Cincinnati Reorganization Committee, or their representative, concerning their plan of reorganization. The meeting then adjourned to June 15.

**Missouri Pacific**—The Carthage, Joplin & Short Creek branch has been completed, and will soon be opened for traffic. It extends from Carthage, Mo., the terminus of the Lexington & Southern Division, southwest to Joplin, 18 miles. It is nearly parallel to a branch of the St. Louis & San Francisco road.

**New Jersey & New York**—The gauge of this road is to be changed next week from 5 ft. to 4 ft. 8½ in. The road has about 37 miles of track, from Hackensack Junction, N. J., to Haverstraw, N. Y., with a branch from Nanuet to New City, and its trains use the Erie track from Hackensack Junction to Jersey City, 7½ miles. The change at this time is made necessary by the change of the Erie, but it was contemplated several years ago, and all the equipment of the road has been built with the view of making the change to standard gauge as easy as possible.

**New Mexico Central & Northern**—This company has been organized with \$3,000,000 capital stock. It is the intention of this company to build a narrow gauge road from a point on the south line of Colorado near Longs Cañon, in the Raton mountains, in a southerly direction through the city of Las Vegas to White Oaks, in the territory of New Mexico, a distance of about 250 miles, and subsequently to the south boundary of said territory by Lincoln and the Pecos Valley.

**New York, Lake Erie & Western**—The Northern Railroad and Piermont Branch are to be changed from 6 ft. to standard gauge June 24. The Eastern Division and all its branches will then be of standard gauge, except the New Jersey & New York road, which does not belong to this company, but simply uses its tracks for some 7½ miles out of Jersey City. That road will also have its gauge changed shortly.

**New York & New England**—During the month of May this company's Western business at the Harlem River and Newburg transfer ferries was as follows:

	Harlem River.	Newburg.	Total.
East-bound cars.	3,076	2,144	5,220
Loaded.....	85	23	108
Empty.....	2,161	2,167	5,328
West-bound cars.	342	557	899
Loaded.....	2,552	1,647	4,199
Empty.....	2,894	2,204	5,098
Total of all.....	6,055	4,371	10,426

The Harlem River transfer brings cars from the Pennsylvania Railroad, and on these the New York, New Haven & Hartford has the haul from Harlem River to Hartford. The Newburg transfer takes cars to and from the Erie, and this company has the haul all the way from Fishkill to Boston.

An agreement has been concluded by this company for the sale to the Boston & Albany of 5½ miles of the Woonsocket Division, beginning at Brookline. This section will be used by the Boston & Albany as part of its proposed Newton Circuit Branch. The price is to be fixed by Commissioner Albert Fink, as arbitrator.

**Oregon Railway & Navigation Co.**—This company makes the following statement for May, and the eleven months of its fiscal year, from July 1 to May 31.

	May.	Eleven months.
Earnings.....	\$381,300	\$4,481,904
Expenses.....	215,840	2,296,361
Net earnings.....	\$165,460	\$2,185,543

For May the gross earnings show a decrease of 5 per cent., and the net earnings of 19 per cent. For the eleven months the net earnings show an increase of 41 per cent. over the eleven months of last year.

The Portland *Oregonian* of June 2 says: "When the announcement was made in last Monday's *Oregonian* that the railroad from the Dalles to Bonneville was in operation, the most natural inquiry was, when will the road reach Portland? and this question is generally asked. In answer it may be stated that the company are putting forth every effort to have the line finished into Albina by Oct. 1. The country is not so level as a parlor floor, and handling the surface not so easy as spading a potato patch. There are several miles of heavy rock cuts and no end of high embankments, to say nothing of 60 trestles, some of them very long. The status of the work yesterday was as follows: The grade from East Portland, up Sullivan's gulch, thence to and across the Sandy, including all trestle work and bridges, is finished. Tracklaying will begin to-day. Twenty-five hundred men are at work on the division with satisfactory progress, except at one point. Below Bonneville for more than half a mile there is a very heavy rock cut directly on the river bank, and work will necessarily be slow, because no large powder shots can be fired. Danger to life and property at Lower Cascades forces the laborers to confine themselves to light blasts, and precludes the idea of pushing things."

**Pennsylvania, Slatington & New England**—The Pennsylvania & New England (formerly the South Mountain & Boston) and the Delaware River & Slatington companies having been consolidated, the corporate name will hereafter be the Pennsylvania, Slatington & New England Railroad Company.

Contracts have lately been let for the bridge over the Delaware River at Portland, Pa., and for the grading from Deckertown, N. J., to Hampton, N. Y., about 18 miles. On the 33 miles from Deckertown to Portland, a large part of the grading has been done, and track-laying is now in progress on the 10 miles between Deckertown and Augusta. On the Pennsylvania side grading is well under way on the section from Portland to Pen Argyl, where a large force is at work.

**Philadelphia & Atlantic City**—The station and round-house in Camden, N. J., were destroyed by fire on the night of June 13. The cars in the station were run out, but 11 engines in the house were very badly damaged. The total loss is estimated at \$100,000. It is believed that the fire originated in a lot of greasy waste in the round-house.

**Pittsburgh Southern**—A contract has been concluded for the sale of this road to the new Pittsburgh & Monongahela Valley Company, which has begun to build a road, some 20 miles of which would be parallel and close to the Southern.

**Richmond & Danville**—This company has been securing the right of way for a belt line north of Atlanta, Ga. It will run from the Atlanta & Charlotte Air Line of this company across to the Western & Atlantic road, and will probably be extended around the west side of the city also.

**Rio Grande & Pecos Valley**—Work is progressing very fast on this road. The grading has been done for some 20 miles, and track has been laid for seven miles northwest from Laredo, Tex. The road is built to reach some large coal deposits on the Rio Grande 26 miles above Laredo, and is in the interest of the Texas-Mexican road.

**St. Paul, Minneapolis & Manitoba**—The directors of this company, in addition to declaring the usual semi-annual dividend, of 2½ per cent., have increased the capital stock of the company from \$15,000,000 to \$20,000,000, stockholders of record July 20 to be allowed to subscribe for the new stock at par on the basis of three shares of new stock for each share of old stock held. The preamble to the resolutions authorizing this issue declares that it is deemed expedient to provide further bonds for the continued development of the property of the company, including the construction and acquisition of certain extensions and branches of the main line, already made or in contemplation and, for these and other purposes, to issue, etc. The subscription is open until Aug. 20, and is to be paid in cash on or before Sept. 20.

**Salt Lake & Western**—Track is now laid on this road from Lehi, on the Utah Central road, 31 miles south of Salt Lake, westward to Boulder, 40 miles. Trains have begun to run regularly. Tracklaying is in progress from Boulder to Tintic.

**Savannah & Pacific Short Line**—This company has been organized to build a railroad from Savannah due west to Columbus, Ga., about 250 miles. The capital stock is \$3,000,000.

**Sioux City & Pacific**—Work has been in progress for some time on the extension of the Nebraska Division. Grading is now completed from Long Pine, Neb., westward 30 miles, and track has been laid for 10 miles.

**Texas & St. Louis**—Track on the Texas Division has reached the Gulf, Colorado & Santa Fe crossing at McGregor, Tex., nine miles southwest of the late terminus at Mt. Olivet, and 21 miles from Waco.

**Toledo, Cincinnati & St. Louis**—This company has lately bought 10 new consolidation engines, 23 passenger cars and 680 box cars. Negotiations are now pending for 10 more engines and 250 coal cars. Payment for the new rolling stock is made in the company's 6 per cent. equipment bonds.

**Toledo, Texas & Rio Grande**—This company has filed articles of incorporation for a railroad from Charleston, Coles County, Ill., by Martinsville to Cairo, about 190 miles. It is apparently intended to be a branch of the Toledo, Cincinnati & St. Louis.

**Union Pacific**—The Salt Lake *Tribune* of recent date gives the following account of the progress of this company's Oregon Short Line:

"Starting at Granger, the track is already laid westward a distance of 82 miles. Tracklaying has commenced in earnest from that point, and is going down at the rate of about one mile per day. In tracklaying they use Moore's improved tracklaying apparatus, which consists simply of a trough or sided track in which are many rollers, over which ties and rails are sent to the front. This is attached to one side of the flat cars, so that ties and rails can be placed on the rollers, and then shoved along rapidly by men either on the flat cars or walking by the side on the ground. At the front end of the train, this track or chute extends forward quite a distance, being supported by a crane. As fast as the ties are sent to the front they are taken by men and put in place; then the rails are dropped and spiked, and the train pushes over the rails just laid, so as to be ready for the next length. The engine is at the opposite end of the train, and pushes the car back as fast as the rails are laid, until the 20 or 30 cars are unloaded. This machinery saves hauling the ties ahead by teams, and is economical in work, especially as there are many places along the road where teams could not reach the line of grade."

"From Granger it is 149 miles to Soda Springs, upon which the grade has been completed, 82 miles of track laid and many of the bridges put in place. From Soda Springs to Portneut, where the line crosses the Utah & Northern, it is 66 miles, making a total of 215 miles from Granger. On this gap between Soda Springs and Pocatello graders are now at work, and already a portion is completed. West of the Utah & Northern the track is laid sixteen miles, and in about three weeks will be completed to American Falls, six miles further. The track west of the Utah & Northern is laid with broad gauge ties and rails placed to accommodate narrow gauge rolling-stock, and when the line is completed from Granger to Pocatello, the track westward will be widened to standard gauge."

"West of Snake River graders are strung out for a distance of 50 miles, and between 750 and 800 teams are at work. This portion of the road is over the desert, there being a stretch of 80 miles between American Falls and Little Wood River having no water, and hence men and teams have to be supplied by hauling water from these rivers. At present the contractors, Messrs. Collins & Stevens, have about 2,000 teams and 3,000 men employed, and are anxious to get all the men and teams they can for pushing their work. Several large outfits are now on the way from Colorado and Nebraska, but they prefer getting laborers here so as to save transportation. Orders have been issued by the management to push the grading through to Baker City as rapidly as possible, and this will be done. The engineers are locating the line, keeping all the time far ahead of the graders, and there is now an energy shown by the company unsurpassed by any former period. Ties, rails, bolts, spikes, etc., are in store ample for all present uses, while orders cover all the material required, to be delivered as fast as wanted. The road is being built with steel rails and first-class in every respect."

**Western Union Telegraph**—The following statement is presented for the quarter ending June 30, June earnings being estimated:

Surplus, April 1.....	\$1,315,531
Net earnings for the quarter.....	1,650,000
Total.....	2,965,531
Interest and Sinking Fund.....	126,700
Surplus.....	2,838,831

On this showing it has been resolved to declare the usual quarterly dividend of 1¼ per cent., which will require \$1,199,750, leaving a balance of \$1,639,081 on hand.

**Weston & Centerville**—This company has been organized and intends to begin work at once on a line from Weston, W. Va., southeast by Buckhannon to Centerville, about 40 miles.

**Wheeling & Lake Erie**—It is reported that this company has made an agreement for interchange of traffic with the New York, Pennsylvania & Ohio, with especial reference to Toledo business. The crossing of the two roads will be at Creston, O. It is expected that this road will be finished to Toledo by August.

**Wisconsin Central**—The annual report of the trustees (a summary of which is given elsewhere), explains as follows their reasons for surrendering the line of the Milwaukee and Northern road and arranging for the construction of the Milwaukee & Lake Winnebago, a new line to Milwaukee. "From Dec. 1, 1873, to January, 1879, the Milwaukee & Northern was used under the terms of a lease to the Wisconsin Central, made Nov. 8, 1873. When in January, 1879, the trustees took possession of the Wisconsin Central they terminated this lease by notice to the owners of that property, because the rental which the lease required—40 per cent. of the gross earnings, and also all taxes, repairs and renewals—had proved to be excessive. On July 31, 1880, the trustees accepted a temporary lease, terminable upon six months' notice, whereby it was agreed, among other things, to pay a rental of 37½ per centum of gross earnings per annum in monthly payments, as well as all licenses, taxes and impositions imposed by law, and all expenses of insurance. The lease, however, proved burdensome, absorbing all profit, and all efforts to procure a satisfactory modification were unsuccessful. All propositions for permanent lease of the Milwaukee & Northern road, or for its joint ownership and probable eventual consolidation with the Wisconsin Central, were rejected. Moreover, the parties who controlled the Milwaukee & Northern were engaged in constructing the Wisconsin & Michigan Railroad from the terminus of the Milwaukee & Northern at Fort Howard, northward toward Lake Michigan; and they avowed their intention to consolidate these two roads at an early day, and take possession of the latter road as the Wisconsin & Michigan was finished, and thereafter to operate it themselves. In 1881 the Wisconsin Central paid to the Milwaukee & Northern, in rentals, and expended for it in operating expenses, the sum of \$2,183.84 more than the entire amount of its gross earnings during that year. Finally the trustees decided to surrender their possession of the Milwaukee & Northern on July 31, 1882, to its owners, and to encourage the immediate construction of a new line to Milwaukee. A new organization was accordingly formed among the stockholders of the Wisconsin Central to build the Milwaukee & Lake Winnebago Railroad, and the trustees and



Although this company's road was at no time seriously blocked, the severe weather encountered by its western connections occasioned a partial suspension of business during the time referred to, and a consequent loss of revenue. There had been but a partial recovery from the effects of these adverse circumstances, when new difficulties arose in the form of a disastrous railroad war, which broke out early in the summer, and which continued with increasing seriousness until the end of the year. The low rates made for both passengers and freight during this period are without precedent, and, as the earnings of the Canada Southern Railway are mainly dependent upon through and competitive business, it is not surprising that they have suffered the decrease shown in the figures of this report. It will be observed that the average rate per ton per mile received for all freight (including local) was 1.12 mills less than the rate obtained in 1880, which, with the increased tonnage of 1881, represents a loss to revenue of \$546,521.36. The average rate per mile received from each passenger during 1881 was 3.51 mills less than the rate of 1880, which, with the increased movement of passengers in 1881, represents a loss to revenue of \$143,622.13. It is gratifying to notice that the local business of the road, as compared with 1880, shows an increase of 15.03 per cent. in tonnage, and of 20.80 per cent. in the number of passengers carried.

As might be expected, with an increase in the amount of freight and the number of passengers carried, there was also a considerable increase in operating expenses; but, in addition to the increase naturally resulting from the movement of a larger business, there was during 1881 an advance in the cost of fuel and the materials used, as well as in the wages of labor employed. The increase in operating expenses of 11.06 per cent. is not larger than is easily accounted for by the increase of 10.73 per cent. in the number of tons of freight and of 21.40 per cent. in the number of passengers carried, in connection with the other causes mentioned. Indeed, credit is due to the officers and employees of the company for the evident economy which has been exercised in the operation of the road during the year, as well as for the faithful attention to duty with which they have labored, under not very encouraging conditions.

Notwithstanding the unfavorable circumstances of the past year, the railway and its equipments have been fully maintained at a high standard, the amount expended for renewal of rails and ties and for repairs and replacement of cars having been somewhat above, rather than below, the average.

On Jan. 1, 1881, the rate of interest on the company's new first-mortgage bonds became 5 per cent., instead of 3 per cent., as it had previously been, thus causing an increase in the amount of fixed charges for the year (on the basis of bonds actually issued) of \$270,825.09, the total amount of interest paid being \$678,624.70, instead of \$407,799.61, as in 1880. It is a subject for congratulation that, even with the extraordinary depression of rates which prevailed during a large part of the year, the net earnings were sufficient to meet this largely increased interest liability, thus justifying the confidence expressed with reference to this matter in our last report.

#### Baltimore & Potomac.

This company owns a line from Baltimore to Washington, 43 miles, with a branch from Bowie, Md., to Pope's Creek, 49 miles, making 92 miles in all. The road is controlled by the Pennsylvania Railroad Company, and its bonds are guaranteed jointly by that company and the Northern Central. The road has been a very expensive one to build, owing chiefly to the great cost of the tunnel and other works by which it enters Baltimore. The following figures for the year ending Dec. 31 are from the reports presented at the recent yearly meeting in Baltimore.

The earnings for the year were as follows:				
	1881.	1880.	Inc. or Dec.	P. c.
Earnings.....	\$966,432	\$780,147	I.	23.25
Expenses.....	840,923	632,663	I.	20.26
Net earnings.....	\$125,509	\$147,484	D.	13.97
Gross earnings per mile.....	10,505	8,589	I.	22.3
Net earnings per mile.....	1,364	1,712	D.	34.8
Per cent. of expenses.....	87.02	80.07	I.	6.95

The increase in expenses is attributed to the extension of a second track, the erection of a car-shed and improvements at passenger station in Washington, and also at Calverton stock-yards. With these extra items of expenditure deducted, the increase in net earnings would be \$48,330.21.

The earnings and expenses were divided as follows:				
	Earnings.	Expenses.	Net or deficit.	P. c. of exps.
Washington line.....	\$920,774	\$775,770	Net.	\$145,004
Pope's Creek line.....	45,658	65,153	Def.	19,495
Total.....	\$966,432	\$840,923	Net.	\$125,509

The Pope's Creek line has never yet earned its working expenses. The Washington line gross earnings were \$21,413 per mile; those of the Pope's Creek line, \$932 per mile. The result of the year was as follows:

Net earnings.....	\$125,509.59
Interest charges.....	272,318.33
Deficit.....	\$146,808.74

In 1880 the loss was \$114,858.15. The deficiency is met by the guarantor companies.

The average cost on both the Washington and Pope's Creek line of movement per passenger per mile was 3.459 cents; of freight per ton per mile the average cost was 1.745 cents. The increased number of passengers carried through the tunnel was 109,413; on the Washington line, 120,805; on the Pope's Creek line, 3,037.

There was a great increase in freight business on the Washington line, 368,686 tons being carried, an increase of 101,030 tons, or 87 1/2 per cent. over the year 1880. The extension of the second track is favorably progressing. The double track is now in use from Baltimore southward to Patapsco River, and from Washington northward to Wilson's, a total distance of 18 miles, or three-sevenths of the whole distance between Baltimore and Washington. In December last contracts were authorized for the graduation and masonry of the remaining 2 1/2 miles between the Patapsco River and Wilson's, and the work has progressed as rapidly as the unfavorable weather permitted. A new iron train shed 112 ft. wide by 496 ft. long, being absolutely necessary, has been nearly completed at the Washington station. Neither pains nor expense have been spared to make it conform in appearance to the rest of the handsome structure. A beautiful mural tablet, commemorative of the assassination of the late President, has been placed in the ladies' reception-room in this station, and a brass five-pointed star countersunk in the floor to mark the spot where Garfield fell.

The severe ice flood in February, 1881, carried away a part of the long bridge between Washington and Alexandria, and necessitated in repairs an expenditure of \$23,420. In addition to the damage repaired there, other renewals were made. At Gwynn's Run the old wooden Howe truss has been replaced with a new iron girder. The wooden four-span bridge over Patapsco River was renewed with an iron superstructure of the best design at a cost of \$53,124. The

miles in Michigan, and 8.60 miles in Ohio. There are 96.75 miles of sidings. There are 303.73 miles of main track laid with steel. Sidings were increased last year by 8.61 miles.

The equipment consists of 89 engines; 38 passenger, 1 combination and 21 baggage, mail and express cars; 1,024 box, 154 stock, 15 oil, 19 gondola, 471 flat and 50 caboose cars; 1 pay car, 1 tool, 2 derrick and 2 boarding cars. There are also 654 leased freight cars on the road.

The general account is as follows:

Stock.....	\$15,000,000.00
New first-mortgage bonds issued.....	13,546,878.62
New first-mortgage bonds held to exchange for old bonds.....	221,150.07
Bills and accounts payable.....	704,243.51
January coupons and unclaimed coupons.....	353,098.02
Income account.....	354,652.36
Total.....	\$30,180,031.58
Construction and equipment.....	\$23,981,119.43
Stocks of proprietary roads.....	1,612,125.00
Bonds of proprietary roads.....	3,310,032.50
Other stocks owned.....	25,174.12
Materials.....	270,654.17
Bills and accounts receivable.....	220,309.87
Uncollected charges and agents' balances.....	286,758.03
Cash.....	473,854.46

The old bonds still outstanding are \$217,000 old firsts, exchangeable at par, and \$13,203.41 old seconds, exchangeable at 31 1/2 per cent.

Charges to construction account for the year were: New buildings, \$13,448.89; new bridges, \$11,916.60; new sidings, \$42,563.10; new water stations, \$7,186.45; other new work, \$1,112.49; total, \$76,227.53. Nothing was charged to equipment.

The traffic for the year was as follows:				
	1881.	1880.	Inc. or Dec.	P. c.
Pass. train miles.....	987,237	999,976	D.	12.739
Freight train miles.....	1,775,237	1,645,393	I.	129,844
Total loco. miles.....	3,749,701	3,579,096	I.	170,605
Pass. carried.....	509,694	468,640	I.	100,454
Passenger miles.....	40,917,987	34,549,322	I.	6,368,665
Tons frt. carried.....	2,273,241	2,052,945	I.	220,296
Too miles.....	487,965,507	454,499,333	I.	33,466,174
Av. train load.....	41.45	34.55	I.	6.90
Passengers, No.....	274.88	276.22	D.	1.34
Freight, tons.....				0.5

Locomotive service cost 14.96 cents per mile run in 1881, and 14.68 cents in 1880.

The tonnage of freight carried was divided as follows: Grain and flour, 35.21 per cent.; live-stock, 3.64 per cent.; products of animals, 3.04 per cent.; other agricultural products, 2.85 per cent.; lumber and forest products, 14.65 per cent.; railroad and other iron, 6.64 per cent.; oil, ores and stone, 1.88 per cent.; coal, 12.60 per cent.; manufactures, 5.24 per cent.; merchandise, 13.15 per cent.; all other articles, 1.10 per cent.

The ton miles of company's freight net earning revenue (not included above) were 2,681,599, the average cost of movement being 0.403 cent per ton mile.

The earnings per train mile were as follows, in cents:				
	1881.	1880.	Inc. or Dec.	P. c.
Passenger train mile.....	78.57	78.47	I.	0.10
Freight train mile.....	145.99	110.75	I.	31.82

A large reduction in the net earnings last year was noted. The rates per passenger and per ton per mile for four years past have been as follows, in cents:

Per pass mile:				
	1881.	1880.	1879.	1878.
East-bound through.....	1.513	1.992	1.836	1.783
West-bound through.....	1.364	1.683	1.564	1.468
Local.....	2.367	2.563	2.222	2.198
Average of all.....	1.746	2.097	1.905	1.878
Per ton mile:				
	1881.	1880.	1879.	1878.
East-bound through.....	0.472	0.611	0.450	0.548
West-bound through.....	0.459	0.562	0.473	0.586
Local.....	1.319	1.163	1.430	1.507
Average of all.....	0.531	0.643	0.512	0.631

In 1881 the passenger traffic was divided as follows. East-bound through, 32.3 per cent.; west-bound through, 33.6 per cent.; local, 34.1 per cent. The freight traffic was thus divided: East-bound through, 59.41 per cent.; west-bound through, 33.11 per cent.; local, 7.48 per cent. The increase in west-bound was very large.

The earnings for the year were as follows:				
	1881.	1880.	Inc. or Dec.	P. c.
Freight.....	\$2,500,769	\$2,918,132	D.	\$327,363
Passengers.....	714,440	724,666	D.	10,226
Other.....	64,051	62,881	I.	1,170
Total.....	\$3,279,260	\$3,705,679	D.	\$426,419
Expenses.....	2,672,347	2,406,341	I.	266,006
Net earnings.....	606,913	\$1,299,338	D.	\$692,425
Gross earn. per mile.....	8,360	9,195	D.	835
Net earnings per mile.....	1,729	3,224	D.	1,495
Per cent. of exps.....	79.31	64.94	I.	14.37

Expenses include taxes. The expenses in 1881 covered 1,460 tons (14.53 miles) steel rails laid; 178,728 (67.70 miles) cross-ties renewed; and 259 cars of various classes built to replace a like number of the company's own cars worn out or destroyed. The cost of all these renewals was charged to operating expenses.

The income account was as follows:

Balance, Jan. 1, 1881.....	\$415,358.77
Gross earnings.....	3,369,250.50
Receipts from other sources.....	6,656.61
Total.....	\$3,791,275.24
Operating expenses.....	\$2,672,346.95
Miscellaneous payments.....	11,598.91
Depreciation of materials, seven years.....	77,032.32
Interest on bonds.....	678,624.70
Total.....	\$3,439,602.88
Balance, Jan. 1, 1882.....	\$354,652.36

On Jan. 1, 1881, the interest on the bonds increased from 3 to 5 per cent., pursuant to agreement.

The depreciation of materials was an adjustment of materials account to actual values, covering the losses and depreciations of seven years past.

The results for four years have been as follows:				
	Gross earnings.	Net earnings.	Int. on bonds.	Surplus.
1881.....	\$3,369,250	\$606,913	\$678,625	\$18,288
1880.....	3,705,679	1,299,338	407,800	\$81,538
1879.....	2,965,366	547,275	391,453	155,822
1878.....	2,480,873	410,615	353,428	57,187

In 1881 and 1880 the mileage worked was 403 miles; in 1879 and 1878 it was 470 miles. The only dividend paid was in 1880, when one of 2 1/2 per cent. was made.

President Vanderbilt's report says: "The year 1881 was one of disappointment and reaction in railroad business. During the first three or four months traffic with the West and Northwest was greatly deranged, and, at times, almost entirely suspended, in consequence first of snow-storms of unusual extent and severity, and afterwards of resulting floods which caused wide-spread injury to railroad property."

The Wisconsin Central Railroad Company decided to join in leasing it for 99 years. This railroad is being rapidly built along the west shore of Lake Winnebago, through the considerable cities of Oshkosh and Fond du Lac to Schlesinger, a town on the Chicago, Milwaukee & St. Paul Railway, distant about 30 miles from Milwaukee. Before the new lease is to take effect, the Milwaukee & Lake Winnebago Railroad will be completely finished with suitable equipment, and laid with the best quality of steel rails, 56 pounds to the yard, on a roadbed constructed in first-class manner, and in every way equal to the best portions of the Wisconsin Central main line. The permanent control of this road is secured to the Wisconsin Central as fully as if it was legally and technically a part of it. Had it been possible for the Wisconsin Central, under its charter, to build this road and issue its own securities therefor, the Agent's report says that the company would undoubtedly have preferred to build it, as a part of its own line. But this course of action, while the Wisconsin Central is in the hands of the trustees and is controlled by the bondholders, under the plan of reorganization, is not feasible. The same equitable result is, however, accomplished, and every Wisconsin Central stockholder has been offered the chance to subscribe for its construction and to share in any profits of the new enterprise. The funds are all provided for building, completing and equipping this new road. The contracts are let, and the work is vigorously pushed, and its early completion is assured. The use of the St. Paul track from Schlesinger into Milwaukee, and of all the terminal facilities in Milwaukee of that company, have been permanently arranged by contract with the Chicago, Milwaukee & St. Paul Railway Company for the use of the Wisconsin Central business; and it is probable that, before the end of 1882, the Wisconsin Central Railroad will be enjoying the full advantages of the new route. The new lease was made prior to the mortgage under which the Milwaukee & Lake Winnebago is to issue its bonds; and, consequently, the control of the Lake Winnebago route is assured in perpetuity to the Wisconsin Central, and there is no possibility of interference by either bondholders or stockholders of that new company at any future day. The new lease covers a new road laid with steel and thoroughly equipped with new rolling stock, and provides a sliding scale for rent which, if the business of the Wisconsin Central grows in the future as in the past, will eventually reduce the percentage of rental very much below what is now paid for use of the Milwaukee & Northern. The Wisconsin Central and its trustees incur, therefore, no pecuniary liability in thus changing from an old road, which has proved to be very expensive to maintain, to a new road which, on account of its superior construction, will not require much outlay in repairs or renewal for several years to come. Although the Milwaukee & Northern is surrendered to its owners on July 31, 1882, and before the completion of the Lake Winnebago route, the agent believes there will be no difficulty in making temporary arrangements for the Milwaukee and Chicago business. It can easily be delivered at Portage City to the Chicago, Milwaukee & St. Paul road, if the Milwaukee & Northern does not wish to receive it at the Menasha terminus. The inconvenience will be slight in making such temporary arrangements, and quite inconsiderable in comparison with the advantages gained by the new route. The terms of the new lease are very much more favorable than any arrangements which have ever been made heretofore for the disposition of the large business which the Wisconsin Central controls and delivers at its terminus.

#### ANNUAL REPORTS.

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#### Canada Southern.

During the year 1881, which is covered by its last report, this company worked the following lines:

	Miles.
Main Line, International Bridge to Amherstburg, Ont.....	229.20
St. Clair Branch.....	62.63
Eric & Niagara Branch.....	30.60
Sarnia, Chatham & Erie Branch.....	7.00
Toledo, Canada Southern & Detroit.....	55.87
Michigan Midland & Canada.....	14.68
Canada Southern Bridge.....	3.68
Total.....	403.04

The Erie & Niagara, the Toledo, Canada Southern & Detroit, the Michigan Midland & Canada, and the Canada Southern Bridge are nominally under separate organizations, but really owned by the Canada Southern Company. Of the total mileage 329.43 miles are in Canada, 65.61



bridge at Little Patuxent has been double-tracked, and the wooden superstructure removed preparatory to renewing it with iron. The masonry of the bridges at Herbert's Run and Beaver Dam has been extended for the second track, and at both is ready for the superstructure. Fourteen bridges on the Pope's Creek line have also been repaired. The work upon the different bridges aggregates a very large proportion of the increased expenditure. In maintenance of way proper repairs have been made, and the condition of the road is believed to be as good as possible. There were 11,445 ft. of new sidings laid, making 14 1/4 miles of sidings now in use.

#### Cincinnati, Hamilton & Dayton.

During the year ending March 31, which is covered by its thirty-fifth annual report, this company worked the following lines:

	Main track.	Second track.	Sidings.
Cincinnati, Hamilton & Dayton.....	59.9	16.6	20.3
Dayton & Michigan.....	142.1	....	27.1
Cincinnati, Richmond & Chicago.....	44.0	....	4.4
Cincinnati, Hamilton & Indianapolis.....	98.9	....	12.4
McComb, Deshler & Toledo.....	8.9	....	....
Total.....	353.8	16.6	64.2

The whole system forms a main line from Cincinnati to Toledo, with branches to Indianapolis, to Richmond and to McComb. The total mileage of track is 434.6 miles.

The equipment consists of 86 engines: 61 passenger, 5 mail and 21 baggage cars; 1,226 box, 177 stock, 347 coal, 464 flat and 31 caboose cars; 6 wrecking cars. Additions during the year were 2 engines, 2 mail cars, 54 box, 64 flat and 84 coal cars.

The general account, condensed, is as follows:

Stock.....	\$3,500,000.00
Bonds.....	2,944,000.00
Surplus earnings.....	1,914,282.00
Accounts and balances.....	696,450.42
Total.....	\$9,054,713.02
Road and property.....	5,362,408.44
Stocks, bonds and advances, leased lines.....	2,779,232.98
F. H. Short, Trustee.....	97,224.57
Stores included plane.....	10,000.00
Accounts and balances.....	275,805.46
Materials.....	257,631.09
Cash and cash assets.....	272,410.48
Total.....	9,054,713.02

The bonded debt consists of \$494,000 second-mortgage bonds, \$996,000 consolidated 7 per cent. bonds and \$1,454,000 consolidated 6 per cent. bonds.

The Dayton & Michigan has \$2,402,573.53 common stock, \$1,211,250 preferred stock and \$2,728,800 bonds. The Cincinnati, Richmond & Chicago has \$382,600 stock and \$625,000 bonds. The Cincinnati, Hamilton & Indianapolis has \$281,679.30 preferred stock and \$2,500,000 bonds.

The traffic for the year was as follows:

	1881-82.	1880-81.	Inc. or Dec.	P. c.
Passengers carried.....	1,720,067	1,675,276	I. 45,391	2.7
Passenger miles.....	42,183,434	40,892,877	I. 1,290,557	3.2
Tons freight carried.....	1,533,479	1,393,776	I. 139,703	10.0
Ton miles.....	148,740,700	139,026,848	I. 9,713,852	7.0
Av. receipt:				
Per pass. mile, gross.....	2.324 cts.	2.294 cts.	I. 0.120 ct.	5.4
" net.....	1.124 "	1.094 "	I. 0.030 "	2.7
Per ton mile, gross.....	1.176 "	1.259 "	D. 0.083 "	6.6
" net.....	0.156 "	0.239 "	D. 0.083 "	34.7

Passenger trains earned \$1.19 and freight trains \$1.96 per mile run. The rate per ton per mile is high, when compared with other roads having the same class of business.

The receipts from the Indianapolis pool were \$23,315.58, and from the Dayton pool \$28,463.09, a total of \$51,777.67, a decrease of \$32,345.16, or 30.2 per cent. from the previous year.

The earnings for the year were as follows:

	1881-82.	1880-81.	Inc. or Dec.	P. c.
Freight.....	\$1,748,872	\$1,721,790	I. \$27,082	1.6
Passengers.....	980,530	901,170	I. 79,360	8.8
Mail and express.....	88,727	88,075	I. 652	0.7
Miscellaneous.....	143,318	171,271	D. 27,953	16.3
Total.....	\$2,961,447	\$2,882,306	I. \$79,141	2.7
Expenses.....	2,031,604	1,895,300	I. 136,304	7.2
Net earnings.....	\$929,783	987,006	D. 57,223	5.8
Gross earn. per mile.....	8.371	8.147	I. 224	2.7
Net ".....	2.628	2.789	D. 161	5.8
Per cent. of expenses.....	68.64	65.75	I. 2.89	....

Renewals for the year included 4,349 tons steel rails and 205,130 new ties, making now 238 miles of main track laid with steel. There were also three new engines and 152 freight cars, built to replace old ones, and charged to expenses.

The earnings were divided between the lines as follows:

	C. H. & D.	D. & M.	C. R. & C.	C. H. & I.
Earnings.....	\$1,067,455	\$1,226,085	\$239,878	\$428,029
Payments.....	981,343	1,198,902	183,365	434,242
Profit.....	\$86,112	\$27,183	\$56,515	....
Loss.....	....	....	....	\$6,213

Payments include all expenses, interest charges and rentals. The earnings of the McComb, Deshler & Toledo road were \$7,779; expenses, \$7,672; net, \$107, against a loss of \$854 the previous year.

The income account was as follows:

Net earnings.....	\$929,782.95
Interest and rental-dividends, etc.....	768,086.63
Net balance.....	\$161,696.32
Sundry receipts.....	16,621.20
Reduction of supplies.....	49,192.74
Increase of current liabilities.....	94,716.91
Total.....	\$322,227.17

New construction, equipment, etc.....	\$99,583.25
Bonds paid off.....	7,000.00
Advances to redeem D. & M. bonds.....	33,844.20
Advances to Cin., Rich. & Ft. Wayne.....	8,133.20
Bills payable paid off.....	107,206.00
Total.....	255,766.65

Surplus for the year.....	\$60,466.52
Balance, April 1, 1881.....	205,943.96
Balance, April 1, 1882.....	\$272,410.48

The General Manager's report recommends an increase in the passenger equipment and an improvement in its condition.

Several new iron bridges have been built and other improvements made in the road.

It is recommended that new shops be built at some point on the road and the Cincinnati shops abandoned, the ground which they occupy to be added to the freight yards. Better terminal facilities are much needed.

Contracts have been made for a grain elevator at Toledo. Other improvements required for greater economy in transportation are recommended.

The report says: "During the year an organization, entirely under the control of this company, was completed with a view of building a branch from Troy to Piqua with the intention of eventually connecting it with the main line

of the Dayton & Michigan road south of Sidney. This should be pushed forward without delay, in order to secure the large amount of business offering along the proposed line before the territory is occupied by rival interests. The length of the line to Piqua will be 8.58 miles and will cost \$102,000, and to a connection near Sidney 18 miles, on which as yet no estimate has been made. The work is comparatively easy, and at small cost a very valuable source of revenue can be permanently secured.

"On June 20 a contract for twenty years was entered into with the Home Avenue Railway Company, under the terms of which this company secured such rights and privileges as to admit of the operating of that line in its interests, and almost entirely controlling the business of the National Soldiers' Home at Dayton. The net earnings to date from that source have been \$2,522.98, and should henceforth show a steady gain."

The report of Mr. F. H. Short, Assistant to the President, says: "No advances have been made since June 1, 1881, on account of our guarantee of interest on the Cincinnati, Richmond & Fort Wayne Railroad bonds, that road having since earned its own interest with a fair prospect of continuing to do so, thereby relieving us of what has been an annual average advance of \$19,087 for the last nine years."

Under the provisions of our consolidated mortgage, a sum equal to 1 per cent. per annum on the amount outstanding is to be invested in any of the bonds of this company, which are to be canceled by the Trustee and then returned to the company. There was due on account of same on Jan. 1 last \$24,500, and a further sum of \$12,250 will be due on July 1. The bonds have been advertised for, but no proposals received that the board thought advisable to accept.

"The balance of \$7,000 due as per last report on the first-mortgage bonds of this company, which matured May 1, 1880, has been paid."

"The Toledo depot bonds (Dayton & Michigan), first-mortgage, amounting to \$52,500, due March 1, 1881, and the first-mortgage bonds, amounting to \$1,846,000, due July 1, 1881, with exception of \$1,500 of the former and \$7,000 of the latter, not yet presented, have been paid and canceled during the year."

To provide funds for this purpose a consolidated mortgage of \$2,728,000, sufficient in amount to cover all the mortgages of the Dayton & Michigan road, was created, having 30 years to run from Jan. 1, 1881, bearing interest at the rate of 5 per cent. per annum, payable semi-annually on the first days of January and July. Of these bonds \$1,888,000 were sold, realizing \$1,856,655.80, leaving \$880,000 to pay off the balance of indebtedness as it matures.

"The situation in regard to the bonds of the Cincinnati, Hamilton & Indianapolis Company has not materially changed since last report, the holders of but \$9,000 having accepted the terms of arbitration, leaving \$292,000 out of \$1,800,000 still to come in and on which no interest has been paid since July 1, 1877. The interest on the \$1,508,000 has been regularly paid as the coupons matured to date."

"The aggregate bonded debt and guaranteed stocks of the company, including its leased lines, is \$10,326,500, against \$10,325,750 last year, an increase of \$750; at the same time the aggregate annual payments of interest and dividends will be \$646,520 the coming year, against \$684,025, or a decrease of \$37,505, which is a saving to this company of over 1 per cent. on its capital stock."

"The agreement for a consolidation with the Cleveland, Columbus, Cincinnati & Indianapolis Railway, into what was to be called the Ohio Railway, and which was almost unanimously ratified at your last annual meeting, was subsequently attacked in the courts and finally overthrown. The Supreme Court of Ohio decided that the consolidation agreement was illegal, holding:

"First. That two railroad companies owning lines of railroad, only connected by railroads which such companies hold by lease, are not authorized to be consolidated into one corporation under Section 3379.

"Second. The lines of two railroad companies being in their general features parallel and competing lines cannot be connected for the carriage of freight and passengers over both continuously within the meaning of Section 3379; and hence such companies cannot become consolidated into one corporation under that section.

"Third. The certificate made by the directors of consolidating railroad companies under Section 3,381, which fails to show any place of residence of the directors of the new company is fatally defective.

"Provision had been made in the consolidation agreement for the sale of a certain amount of shares of the new company, wherewith to meet the expenses of additional equipment needed by your road, with the cost of completing the double tracks and other construction expenditures.

"It was deemed inexpedient to incur a floating debt, upon the obligations arising from so much of the extraordinary renewals and construction work as was required to be done during the past year; and, by the defeat of the consolidation policy, no other recourse was left your board but to use the entire earnings for the benefit of the property.

"The condition of the lines and their equipment has been much improved, and the outlook is encouraging in an increased ability to handle traffic economically."

#### Pacific Mail Steamship Co.

This company owns and works steamship lines between New York and San Francisco, via Panama, and between San Francisco, Yokohama, Hong Kong and Australia and New Zealand ports. The report is for the year ending April 30.

The capital account is as follows:

Stock.....	\$20,000,000
Panama R. R. Co.....	1,293,208
Sundry accounts and balances.....	391,439
Total.....	\$21,684,647
Steamers.....	\$11,971,158
Real estate.....	1,079,513
Sundry assets.....	512,328
Coal and supplies.....	450,072
Profit and loss.....	7,671,576
Total.....	\$21,684,647

The large debit balance of profit and loss represents losses on former business, steamers lost and similar items.

The earnings and expenses for the year were as follows:

	1881-82.	1880-81.	Inc. or Dec.	P. c.
Steamships.....	\$3,762,082	\$4,057,285	D. \$295,203	7.3
Subsidies.....	307,394	310,189	D. 2,795	0.9
Miscellaneous.....	55,237	35,173	I. 20,064	57.3
Total.....	\$4,124,713	\$4,402,647	D. \$277,934	6.3
Steamships.....	2,476,013	2,543,992	D. 67,979	2.7
Gen. and mis.....	747,023	628,713	I. 118,310	18.8
Total expenses.....	\$3,223,036	\$3,172,705	I. \$50,331	1.6
Net earnings.....	\$901,677	\$1,229,942	D. \$328,265	26.7
Per cent. of exps.....	78.13	72.06	I. 6.07	....

The decrease in earnings is partly explained below. The Victoria (British Columbia) line, run in 1880-81, was given up last year. The increase in expenses resulted in a considerable loss in net earnings.

The earnings and expenses of the several steamship lines last year were as follows:

	Earnings.	Expenses.	Profit or loss.
Atlantic Line.....	\$693,065	\$406,337	P. \$286,728
Panama Line.....	1,675,777	1,080,897	P. 594,880
Australian Line.....	334,870	367,292	L. 32,422
Trans-Pacific Line.....	1,058,370	531,487	P. 526,883

Total..... \$3,762,082 \$2,476,013 P. \$1,286,069  
The total earnings were derived, \$1,249,474 from passengers, and \$2,512,608 from freight.

The subsidies received were \$90,463 from Mexican and Central American governments; \$8,000 from the Hawaiian government, and \$208,931 from Australian and New Zealand colonies. The subsidies much more than made up the small loss on the Australian line.

The president, Mr. J. B. Houston, remarks in his annual report, the fact that the traffic contract with the overland railroad companies was temporarily suspended for a period of two months, resulting in a decrease of the net revenues of the company to the extent of at least \$200,000. A new working contract was, however, concluded with the railroad companies on Jan. 1, an important feature of which is that six months' notice is necessary before the contract can be abrogated. In considering the net results of this year's business, due allowance should also be made for the large advance in the cost of supplies and labor, which this, in common with all other transportation companies, has experienced to its disadvantage. The indebtedness of the company to the Panama Railroad Company has been steadily and materially decreased (to the extent of \$278,216), and all of the payments on account of fixed charges have been promptly and satisfactorily met. The steamships "City of Rio de Janeiro" and "City of Para" have been paid for in full by an outlay of \$523,767 since last annual report, and the sum of \$530,087 has been paid on the steamships "San Jose," "San Juan" and "San Blas," now building at Chester, Pa. Further payments to the extent of \$290,000 on the contract for these three latter vessels have been provided for, and will be promptly met as they mature. The sum of \$346,028 has also been expended in extraordinary repairs on the following named vessels: Steamships "Acapulco," "Crescent City," "Honduras," "South Carolina," "Granada" and "City of Peking," with the result of placing the company's fleet in a most efficient condition. A new treasure launch has been provided at Panama at a cost of \$4,833.

The beaching of the steamship "Salvador" at San Lucas Island, near Punta Arenas, took place on April 23. Full reports as to the condition of the "Salvador" have not as yet reached New York. The "Salvador" is an iron vessel, built in 1861, and was purchased from the Panama Railroad Company, ten years since, for \$125,000.

#### Wisconsin Central.

The report of Messrs. John A. Stewart and Edwin H. Abbott, trustees in possession of the Wisconsin Central Railroad, by Charles L. Colby, Agent of the trustees, for the year ending December 31, has just been issued.

The report gives no statement of the liabilities of the company, the Agent being concerned only with the operation of the road.

The road worked consists of the main line from Stevens Point, Wis., to Ashland, 250 miles, with the branches from Stevens Point to Portage, 70 miles, and from Menasha to Appleton, 5 miles; and the leased Milwaukee & Northern road, 120 miles, making 454 miles in all.

The Wisconsin & Minnesota, from Abbottsford to Chippewa Falls, 54 miles, is operated in connection with this road, but its earnings and expenses are not included.

The land sales in 1881 were 17,552 acres for \$61,575, a large increase over the previous year. Total receipts from the land grant to Dec. 31, 1881, were

Land sold, 106,531 acres.....	\$290,901
Town lots and blocks.....	23,411
Pine stumpage, 189,096,000 ft.....	297,064

Total..... \$611,376  
The land contracts on hand Dec. 31 amounted to \$53,000, face value, exclusive of interest due and accrued at that date.

The earnings for the year were as follows:

	1881.	1880.	Increase.	P. c.
Freight.....	\$960,046	\$815,418	\$144,628	17.7
Passengers.....	346,825	278,415	68,410	24.6
Mail, etc.....	59,096	52,519	6,577	12.5
Total.....	\$1,365,967	\$1,146,352	\$219,615	19.2
Expenses.....	866,443	653,077	213,366	23.5
Net earnings.....	\$559,524	\$493,275	\$66,249	13.4
Rents and taxes.....	287,416	227,529	59,889	26.3
Balance.....	\$272,108	\$265,748	\$6,360	2.4
Gross earn. per mile.....	3.009	2.525	484	19.2
Net ".....	1.232	1.087	145	13.4
Per cent. of exps.....	59.64	56.99	2.65	4.7

The report says: "The increase in traffic during the year 1881 is especially gratifying because it is not the result of increased mileage, but arises entirely from the development of business upon our own line and the connecting roads which are operated as part of the Wisconsin Central system. During 1881 the Packwaukee & Montello Railroad was built from the end of our Packwaukee spur to Montello. It is about seven miles long, and secures for us the traffic of Montello and its granite quarries, which are destined to become an important industry. It also widens the territory which is tributary to our line, and will be a valuable feeder to our business. The Wisconsin & Minnesota and the Chippewa Falls & Western railroads, which are now operated in connection with the Wisconsin Central, have stimulated traffic considerably north of Stevens Point. They furnish a much needed link to connect our piers with the railroads running to the great markets in St. Paul, Minneapolis, and other Mississippi and Missouri River points, west and south-west. The maintenance of the Wisconsin Central road-bed and rolling stock in first-class condition is absolutely necessary. Whatever the cost, and whatever delay in beginning to pay interest on our second series bonds, results from spending our earnings on the road—such repairs, renewals and improvements are indispensable."

For the purpose of supplying rolling stock which was absolutely necessary, the Wisconsin Central stockholders were in December, 1879, invited to join in organizing a car company which should from time to time buy what new rolling stock and motive power the trustees needed, when and as required, and thus enable them to retain and increase the business which was within their natural territory. The trustees offered to hire from the proposed new car company such equipment as they should designate from time to time, agreeing to employ all cars so furnished as soon as they were delivered on the road, and to retain them on rental until such time as the trustees, or their successors in operating the road, should elect to buy them. At first \$200,000 of new rolling stock was thus supplied; but the necessities of the road have required successive additions, and the leased equipment now amounts to \$650,000.

The report refers at considerable length to the reasons of the trustees for terminating the Milwaukee & Northern lease, and for making arrangements for a new line for this road to Milwaukee, to be independent of all other lines.